

# **Investigating the Effectiveness of a Parent-Led, Home-Based Phonological Awareness and Vocabulary Programme on 4-year-old Children**

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## **ABSTRACT**

Children's early language and literacy skills are critical for their later educational accomplishment. Phonological awareness and vocabulary knowledge are two early literacy skills which have been found to be highly predictive of children's success in reading and writing. In early childhood, these abilities are often not explicitly taught by parents, and are instead learnt through observing and interacting with other language users. Children who have underdeveloped phonological awareness skills and vocabulary knowledge are more likely to experience problems in reading and writing once they start formal education. Early literacy intervention programmes frequently employ trained professionals, such as teachers or speech and language therapists, to support children's development of these skills. There remains, however, a significant gap in the research around the development of early literacy skills such as phonological awareness and vocabulary within the home and family environment, and the facilitation of these skills by parents.

The goal of this research was to examine the effectiveness of an early literacy programme implemented in the home environment that focused on both phonological awareness skills and vocabulary knowledge. Fundamental to the programme was its implementation by whānau/parents during regular everyday activities. The study found parents to be effective at implementing an early literacy programme targeted at facilitating the development of children's emergent literacy skills. The programme not only improved children's early literacy skills, but also increased their interest in literacy activities, such as reading and writing. Parent reports also identified positive effects on children's articulation, speech, engagement and overall confidence. Parents were positively affected by their participation in the programme as well, with reports of increased confidence in their own English proficiencies and literacy skill development.

## **CHAPTER 1**

### **INTRODUCTION**

Children's emergent literacy skills are a strong predictor for later academic achievement. Children who demonstrate strong literacy and language skills are more likely to experience success in reading and writing (Beck & McKeown, 2007; Lonigan et al., 2013; Westerveld, Gillon, van Bysterveldt, & Boyd, 2015). Reading proficiency is the core of educational accomplishment. Children who thrive at reading, read more, therefore acquiring advanced reading skills, vocabulary knowledge and linguistic comprehension (Lonigan et al., 2013). Children who struggle to develop early reading skills are likely to continue to struggle in reading compared to their peers in their later school years (Ogg, Sundman-Wheat, & Bateman, 2012). Difficulties in literacy development, if not addressed early in a child's education, have been found to affect later educational experiences into adolescence and adulthood. Snow, Burns and Griffin (1998) found children who had poorer reading skills at the end of third grade (Year 4 in New Zealand) increased the likelihood that they would not graduate high school.

Two core features of children's early literacy and language skills are phonological awareness and vocabulary. Phonological awareness is the specific ability to identify, isolate and manipulate the individual sounds in words, called phonemes. It is a critical skill contributing to children's ability to decode written words (Fielding-Barnsley & Hay, 2012; Harper, 2011; O'Callaghan et al., 2016). Vocabulary encompasses both receptive vocabulary, the words a person knows and can understand; and expressive vocabulary, the words a person uses and can provide a definition for. Vocabulary is especially important for helping children to understand the meanings of words as well as helping them to decipher unknown words



(Duff & Tomblin, 2018; Marulis & Neuman, 2013). Although there are many other literacy skills essential to helping children learn to read, these two skills have been found to be two of the most reliable early predictors of future reading success (Sensenbaugh, 1996).

Having strong literacy skills is especially critical for children once they transition from ‘learning to read’ to ‘reading to learn,’ as the focus shifts to using these early literacy skills to obtain knowledge on other topics (Westerveld et al., 2015). Although these emergent literacy skills are critical to children’s later academic achievement, children can start school with lower levels of both skills, which affects their ability to become effective readers (Lonigan et al., 2013). The gap between children with and without these early literacy skills only increases once children enter formal schooling and, without intervention, can lead to poorer academic outcomes, spanning into high school and beyond (Marulis & Neuman, 2013).

Intervention programmes can help bridge the gap and increase children’s literacy skills. However, literacy programmes and interventions favour trained professionals, such as speciality teachers, researchers or speech and language therapists. These individuals are often viewed as the most qualified, and therefore most successful at improving children’s outcomes. Greater effect sizes are often found in studies involving trained professionals over untrained people (Marulis & Neuman, 2010). However, new educational practices and policies globally, are putting increased emphasis on the important role parents play in facilitating their children’s learning and educational development (Burgoyne et al., 2018).

Vocabulary is a social process. Children learn new words through their interactions with the people around them. The more novel words a child hears, the larger their vocabulary and linguistic comprehension will be. For children’s phonological awareness to develop,

children must understand that words are made up of sounds, called phonemes. Isolating, manipulating, combining and deleting of phonemes helps children develop the ability to decode words when reading (Fälth, Gustafson, & Svensson, 2017).

The aim of the current study was to examine the effectiveness of a parent-led, home-based, early literacy programme that targeted phonological awareness skills and vocabulary in four-year-old children. The term *parent* throughout this research extends to anyone in a parental role, including caregivers, whanau, and aiga.

The study addresses the following questions:

- (1) Can a parent-delivered, oral-based early literacy programme, implemented in the home environment, improve the phonological awareness skills and vocabulary knowledge of four-year-old children?
- (2) Are parents able to effectively and consistently implement an early literacy programme and facilitate the development of their children's emergent literacy skills?

This thesis is structured as follows; Chapter 2 discusses current literature relating to the development of early literacy and language skills, as well as, risk factors to its development, the role of parents in children's literacy development, early literacy within the New Zealand context and the current study. Chapter 3 will describe the methodology of the current research, including the participants, materials, and procedure. It will include an in-depth look at the conception, creation and implementation of the early literacy programme used within this study. Chapter 4 will discuss the results of the four case studies, followed by a cross-case analysis of all participants. Chapter 5 will examine the results and outcomes of this study and will evaluate the early literacy programme utilised in this study. Chapter 6 will

discuss the strengths and limitations of this study, as well as, implications for current practice and future research within this field.

## **CHAPTER 2**

### **LITERATURE REVIEW**

Becoming a proficient reader is the peak achievement of children's early academic experiences. It sets the foundation for all future learning, and underpins one's ability to succeed in our modern world. Therefore, understanding the 'learning to read' process and discerning the best techniques for supporting those who struggle to thrive at reading, is one of the most important challenges that face general and specialised teachers today (Nelson, Benner, & Gonzalez, 2003).

#### **A Simple View of Reading**

Children's early literacy abilities consist of two parts. The first part comprises of meaning-related skills, such as vocabulary, story retelling, oral language and grammatical ability. The second part consists of code-related skills, such as letter knowledge and phonological awareness (Westerveld et al., 2015). Code-related skills facilitate children's capability to obtain the alphabetic principle and, thus, are imperative to children's ability to become effective decoders of written text (Lonigan et al., 2013). Meaning-related skills, predominantly associated with language, contribute to comprehension once text is decoded (Westerveld et al., 2015).

The Simple View of Reading (SVR), theorised by Gough and Tunmer (1986), describes reading comprehension as the product of word-level decoding and linguistic comprehension (Reading Comprehension = Decoding x Linguistic Comprehension). According to this theory, children cannot be efficient readers by simply decoding text or understanding text. It is the relation and ability of the two combined which dictates reading success (Savage et al., 2015). The validity of this cognitive model has been supported by a

significant amount of research, such as Catts, Adolf, Hogan and Weismer (2005), Johnston and Kirby (2006), Adolf et al. (2006), and Foorman et al. (2015).

The SVR model has been critiqued by many, in most part for its simplicity. Several researchers claim that decoding and linguistic comprehension are not as easily disconnected as the framework suggests. Francis, Kulesz, and Benoit (2018) argue that the SVR model focuses only on reader-internal factors and does not take into account the variation within readers and texts. Gough and Tunmer (1986) regard decoding and linguistic comprehension as being of equal importance, however, researchers such as Snow (2018) and Uccelli et al., (2015) find the SVR model to be insufficient to describe the reading acquisition of older readers (Grade 3 and above), who require greater levels of complex comprehension than young readers who can succeed early with simple comprehension. In basic terms, the older a person gets, the more complex texts become, and therefore the more comprehension and word knowledge that a person requires to understand and fluently read that text.

Despite its name, Gough and Tunmer (1986) do not deduct that learning to read is a simple process. Word decoding and linguistic comprehension are highly complex features, which each encompass several smaller linguistic skills and processes. Tunmer and Hoover (2019) extended Gough and Tunmer's (1986) SVR model through their Cognitive Foundations Framework, displayed below in Figure 1. This is a hierarchal framework which builds on the SVR model to demonstrate the developmental processes and subskills undertaken in order to achieve reading comprehension, as well as, the direct and indirect influences which can affect it.

Figure 1  
*Cognitive Foundations Framework*

Reading Comprehension						
Language Comprehension				Word Recognition		
Background Knowledge and Inferencing Skills	Linguistic Knowledge			Alphabetic Coding Skill		
	Phonological Knowledge	Word Knowledge	Semantic Knowledge	Concepts about Print	Knowledge of the Alphabetic Principle	
					Phonemic Awareness	Letter Knowledge

*Note.* Reproduced from *The Cognitive Foundations of Learning to Read: A Framework for Preventing and Remediating Reading Difficulties.* (Tunmer & Hoover, 2019, p. 2)

At the top of this framework, as in the SVR model, is reading comprehension. This is defined as the ability to understand and create linguistically based meaning from written text (Tunmer & Hoover, 2019). Directly underpinning reading comprehension is language comprehension and word recognition.

Beneath word recognition is alphabetic coding skills; which is further supported by concepts about print, knowledge of the alphabetic principle, phonemic awareness and letter knowledge (Tunmer & Hoover, 2019). To recognise and decode words, one must first know what letters are, what sounds letters represent, the structure of written language and the interplay between different letters in different words.

The lower foundation needed for language comprehension includes background knowledge and inferencing skills and linguistic knowledge; which in itself is made up of phonological, syntactic and semantic knowledge. To have language comprehension and understand the words one is reading, one must first know what each word means, how these words are pronounced and any different meanings or circumstances for these words.

Although it is hierarchal, this framework does not command that lower processes need to be mastered before the next can be learnt. Some mastery is needed to move forward, however, many of these skills and processes develop concurrently in a reciprocally facilitating style. This model is able to more accurately demonstrate the cycle of learning and reading progression, with processes mutually affecting each other throughout development.

Gough and Tunmer's (1986) SVR model, in conjunction with Tunmer and Hoover's (2019) Cognitive Foundations Framework, reinforce the interplay of the different skills needed for children to master reading. Supporting children in becoming successful readers consists of teaching them to break down spoken words into their individual sounds, in conjunction with increasing their vocabulary knowledge to understand and link the words they decode.

### **Emergent Literacy Skills**

Emergent literacy refers to children's acquisition of literacy and language skills along a developmental continuum (McLachlan & Arrow, 2010). These skills accumulate over time, emerging in the early years and increasing once a child begins school. In the early years, emergent literacy develops via a child's exposure to social interactions and contexts, rather than formal instruction. As such, children's early literacy environments, at home and kindergarten, play a crucial role in the development of these early skills.

### *Vocabulary*

Vocabulary is one of the most important and adaptable skills that makes up a child's meaning-related emergent literacy skills. This is because vocabulary sets the foundation for future comprehension, domain-specific knowledge, and reading ability (Duff & Tomblin,

2018; Marulis & Neuman, 2010; Marulis & Neuman, 2013). Vocabulary is divided into two categories. Expressive vocabulary refers to the words a person uses and can give a definition or synonym for (Gillon, et al., 2019). Receptive vocabulary includes the words an individual can understand and respond to.

The rate at which children's vocabulary develops varies widely from child to child. It is influenced by a multitude of factors, including social interaction, home literacy environment, and parental input (Rowe, Raudenbush, & Goldin-Meadow, 2012). A child's early vocabulary is dictated by their exposure to the variety of words spoken by the people around them. Studies have found that children's early word knowledge is strongly linked to their reading comprehension, not only in primary school but all the way through into high school (Marulis & Neuman, 2013). Children's vocabulary starts developing before they can even produce words because vocabulary builds and develops with every interaction they have. This can be through being spoken to directly, or indirectly hearing others speak and interact, as well as through exposure to books, talking toys, songs, television and movies. By age five, a typical child will have an expressive vocabulary of between 2,100 and 2,200 words and a receptive vocabulary of around 10,000 words (Klarowska, 2011; Owens, 1996). By the time they are six years old, their expressive vocabulary will have expanded to 2,600 words and their receptive vocabulary to between 20,000 and 24,000 words (Owen, 1996).

Beck, McKeown and Kucan (2002, 2008) outlined a model for classifying the words that readers come across. Tier 1 words are simple, common words such as cat, mum, dad, bed, walk and see. Children are often taught these as sight words in primary school and use them daily in speech. Tier 2 words are words used by mature language users and are more likely to be used in written text than speech. For example, demonstrate, vary, accumulate,



frustrated, and calibrate. Tier 2 words can be used in multiple contexts and can often stump readers who have never come across them before. Tier 3 words are less common and are highly specific to a context. For example, beaker, Bunsen burner, and test tube, which are particular to a science context. These words have their place but are less important for everyday literacy and language development. Increasing children's knowledge of Tier 2 words not only helps them to decode and comprehend written texts once they begin reading but also helps to broaden and deepen their own oral and written narratives.

### *Phonological Awareness*

There are several components that make up a child's code-related ability, such as letter knowledge and print awareness, however, in preschool-aged children, phonological awareness is one of the most important. Phonological awareness is the specific ability to focus and manipulate the individual phonological units or sounds (phonemes) which make up spoken words (O'Callaghan et al., 2016; Sensenbaugh, 1996). Adams (1990) describes five areas of phonological awareness skills: rhyme and alliteration, compare and contrast sounds of words, blend and segment syllables, segment phonemes, and phoneme manipulation that includes adding or deleting phonemes from a word. Children's awareness of these units, particularly phoneme blending and segmentation, foster a child's ability to encode and decode words and hear and blend sounds, which set the foundation for later reading, writing and comprehension (Fielding-Barnsley & Hay, 2012; Harper, 2011; O'Callaghan et al., 2016). Research indicates that phonological awareness is the best predictor for early reading acquisition (Sensenbaugh, 1996). Children develop these skills slowly through both implicit interactions and explicit instruction - such as hearing and producing rhyming words or alliterative phrases in books and songs.

Studies have found that before a child can learn to read words, they need to understand that spoken words are made up of sounds (Fälth, Gustafson, & Svensson, 2017; Harper, 2011). Children must be able to intentionally and methodically hear, recognize and manipulate those sounds. These skills help children decode and encode words and make up the foundation for how they understand and link language. Children who commence school with lower levels of phonological knowledge often struggle to develop their literacy skills to an equal standard as their classmates (Ogg et al., 2012). Children who have had phonological awareness instruction prior to starting school have been shown to be more prepared and better equipped for learning to read and write than those children who have not (Hindson et al., 2005). A lack of phonological awareness skills upon entering primary school can lead to children falling behind academically and having trouble decoding and understanding written language.

### **Risk Factors Affecting Early Literacy Development**

Research demonstrates that children who struggle with their early literacy in school have poorer educational and social outcomes. They are at-risk for antisocial behaviour, truancy, exclusion from school. They may experience poorer employment outcomes, poorer health and lifestyles, and higher rates of criminal behaviour and intergenerational effects (Hudson, Price, & Gross, 2009). Given the role of foundational skills in later development, intervention programmes are required early on to foster and improve at-risk children's vocabulary and phonological skills. Children who are at-risk for their literacy development are often less prepared to start school, which can threaten their future skill development and can lead to them falling behind their peers. Parents who struggle with their own literacy often do not have the skills to develop the literacy and language skills of their children. This has

been shown through differences in vocabulary (Hart & Risley, 1995; Taylor et al., 2013), exposure to literacy activities (O'Connor et al., 2009) and even the frequency and choice of which books parents read to their children (Aram & Aviram, 2009).

Reading difficulties are often linked to disruptive behaviour in the classroom which can negatively affect not only a child's own learning but their peers as well. Early reading problems are predictive of both inattentive behaviour and poor reading self-perception (Prochnow, Tunmer, & Chapman, 2013). As reading is such a significant part of both the education system and everyday life, those who struggle often feel isolated and excluded. There are multiple risk factors that can affect a child's development of early literacy and language skills, such as those with low socioeconomic status (SES), English as a second language speakers, intellectual and physical disabilities, listening, reading, visual or speaking impairments, poor maternal mental health, lower parental education, speech-sound disorders, low school readiness, and emotional or behavioural disorders (Duff & Tomblin, 2018; McLachlan & Arrow, 2010; Taylor et al., 2013; Anthony et al., 2011). These factors can increase the difficulties some children will experience when developing the necessary skills to become a proficient reader. Research demonstrates that the more risk factors present in a child's life the increased chance of a negative impact on children's early literacy development (Cadima, McWilliam, & Leal, 2010).

Research has shown that there is a profound difference in the amount of word knowledge children have depending on their ability to learn, retain and understand new words as well as their socioeconomic status (Hilbert & Eis, 2014; Marulis & Neuman, 2013; Marulis & Neuman, 2010). Research by Marulis and Neuman (2010), found that children from low socioeconomic backgrounds built their vocabulary at slower rates than children

from higher-income families, potentially producing a cumulative disadvantage over time. Research from the US found that children from higher socioeconomic backgrounds in first grade (Year 2 in New Zealand) knew almost double the number of words as those of the same age from lower socioeconomic backgrounds. Hart and Risley (1995), for example, estimated that children from lower-income families were exposed to an accumulated 13 million words in the first four years of life. On the other hand, a four-year-old child from a professional family has been exposed to about 42 million words. This is, in part, due to their parents and family members talking to, and reading to them more frequently and having larger, more complex vocabularies to expose their children to. This research, however, has been critiqued, suggesting that there were issues with Hart and Risley's (1995) methodology and that children's vocabulary sizes were inaccurately assessed (Nation, 2017). Hart and Risley (1995) measured children's vocabulary by recording their speech for one hour, once a month and creating an ever-increasing list of words from the samples. It is possible, however, that new words observed during the sample had been learnt months prior but just not observed during that month's sample (Nation, 2017). Therefore, the vocabulary growth measured for each child was not their developmental trajectory or vocabulary growth but simply an increasing accumulation of observations.

Children's early development of phonological skills is highly dependent on external input. It has been theorised that lower socioeconomic status could also affect children's phonological skills through a lack of early exposure to text and less meaningful experiences with written materials than those of middle-class children (O'Connor et al., 2009).

As part of the Longitudinal Study of Australian Children, Taylor et al. (2013) investigated the risk factors for children's receptive vocabulary development between four

and eight- years. They used bivariate and multivariate growth curve modelling to estimate the trajectories of children's receptive vocabulary in relation to a wide range of child and family factors, specifically, maternal factors. They found risk factors at four years old to be: low birth weight, maternal non-English speaking background, low school readiness, low maternal education and consistency, teenage parenthood, socioeconomic area disadvantage, and mental health distress. Maternal non-English speaking background was found to be the largest risk to English receptive vocabulary at four years of age. None of these factors negatively affected vocabulary growth between four and eight-years. Through this time, maternal non-English speaking background, maternal mental health distress and low school readiness were actually associated with a higher rate of receptive vocabulary growth, although this growth was not significant enough to close the gap between children with, and without, these risks at eight years old. Although not a risk factor at four years old, this study found the greatest risk factor to children's receptive vocabulary at eight years old was socioeconomic disadvantage. Taylor et al. (2013) found that at eight years old, the gap between children with, and without, socioeconomic area disadvantage was equivalent to eight months of receptive vocabulary growth. This disparity in early literacy skills only continues to grow. Research by Reardon et al. (2013) found children from low socioeconomic families start high school with average literacy skills five years behind their peers from high socioeconomic backgrounds. However, not all risk factors provide such long term consequences. The effect of risk factors present earlier in children's development, such as maternal non-English speaking background or low parenteral education, can decrease over time as children start school, interact with wider populaces, and parents own English proficiency or education increases (Taylor et al., 2013).

Children from families where there is a known history of literacy struggles may also experience the same literacy difficulties (McLachlan & Arrow, 2010). Łockiewicz and

Matuszkiewicz (2016) found parents reporting of their own dyslexia and specific reading and writing difficulties was related to the risk of dyslexia in children in Year 1. They also found that compared to their peers with no risk, children at familial risk of dyslexia began 'babbling' later, had less interest in drawing at age two to three, and experienced more difficulty with drawing a circle at age three.

Poorer literacy skills and academic achievement are not inevitable for these populations, but they may require dedicated support once starting school in order to develop early literacy skills. If these skills were developed earlier, before starting school, the educational outcomes for these children may be improved.

### **Early Literacy Interventions**

The SVR model (Gough & Tunmer, 1986) places reading difficulties into three categories: difficulties in decoding, difficulties in linguistic comprehension, and difficulties in both areas (Farrell et al., 2010). However, there is also a fourth category, difficulties in reading comprehension (Nation, 2017). Research indicates that current effective interventions develop and promote skills in only one domain (Lonigan et al., 2013). Phonologically based interventions are effective at developing children's word-level decoding skills, while vocabulary interventions are effective at improving children's oral language and linguistic comprehension (Snowling & Hulme, 2011). This suggests that children who have difficulties in both areas need exposure to multiple interventions to increase both code-related and meaning-related skills in order to become successful readers (Dennis, 2016; Lonigan et al., 2013; Gough & Tunmer, 1986).

Hilbert and Eis (2014) investigated the effectiveness of the Read It Again Pre-K (RIA) (Justice & McGinty, 2012) programme as an emergent literacy intervention for low-

income children at-risk for poor early literacy skills. RIA is a free curricular supplement for early childhood teachers and professionals, which focuses on developing children's vocabulary, narrative, print knowledge and phonological awareness. The programme is usually implemented by specifically trained teachers or speech and language therapists. Hilbert and Eis sought to understand whether teachers could implement an emergent literacy intervention programme successfully. Pre-school teachers were trained for one hour at the beginning of the year on the RIA programme and participated in monthly discussions during staff meetings. Hilbert and Eis (2014) found the RIA programme, when implemented by teachers in low-income pre-schools, was effective at improving the vocabulary, picture naming and alliteration skills of at-risk children. These results suggest that relatively untrained teachers are effective at implementing early literacy programmes. This challenges the notion that such interventions should be implemented by specific professions and suggests that other professionals may have a role in facilitating the development of early literacy and language skills in children. While children did not demonstrate gains in all areas that the RIA programme aimed to promote, this was largely due to factors around support of teachers and limitations of the assessment instruments. The findings raise questions about the consistency and content of intervention programmes and what outcome measures are used to assess children's skills.

### *Phonological Awareness Interventions*

As having a strong phonological understanding is so important for decoding text it as a highly researched topic. Phonological awareness encompasses a wide range of skills. Although it is a widely researched field, debate remains about the importance of different levels of phonological awareness and when these should be taught and measured. Torgesen,

Morgan and Davis (1992) explored the effects of two different phonological awareness intervention programmes on kindergarten-aged children. One programme used explicit instruction of synthetic (blending) and analytic (segmenting) phonological skills, while the other programme focused on synthetic skills only. Children received three sessions a week for seven to eight weeks. Torgesen et al. (1992) found children who received the programme with instruction on synthetic skills only improved in that area of phonological awareness. They demonstrated a higher proficiency for this skill than the group that received both analytic and synthetic instruction. Children who received the programme that included both analytic and synthetic instruction improved on both types of phonological awareness skills and showed a positive training effect for word learning and reading tasks. This research demonstrates the need for developing multiple skills during intervention programmes. Similar outcomes have been found by Harper (2011), Fernandez-Fein and Baker (1997) and Nancollis, Lawrie and Dodd (2005).

Harper (2011) examined how an explicit Euro-American nursery rhyme intervention affected preschool-aged children's phonological awareness. During this study children, received explicit instruction on 10 nursery rhymes through multiple mediums, such as visual activities (posters), auditory and oral language activities (reciting, hearing and singing), and kinaesthetic activities (dramatizations, role play, puppets). Harper (2011) found children who received the phonological awareness intervention scored significantly higher on both measures of phonological awareness than children who had not received the intervention. The biggest gains for the experimental group were made on the rhyme completion task, while the smallest gains were made for phoneme identity (beginning sounds). The results of Harper's (2011) research suggests that teaching young children nursery rhymes and other ways to manipulate the sounds in words, can play an important role in children's linguistic and early



literacy development, and in establishing children's awareness of sound patterns. Both Harper (2011) and Torgesen et al. (1992) results suggest, however, that phonological awareness programmes need to focus on developing a wide range of skills, with a concentration on foundational skills which children can build on once they start formal education.

Early phonological awareness skills are the most reliable predictor of later reading success. Therefore, decreasing the gap between children with and without this skill is highly important. Hagans and Good (2013) utilised a phonological awareness intervention to try to decrease the gap in literacy proficiency between Grade 1 children from low and high socioeconomic backgrounds. In this study, children from low socioeconomic backgrounds received 20 to 25 minutes of explicit phonological awareness instruction based on the Phonemic Awareness in Young Children curriculum (Adams et al., 1998), four days a week, for 10 weeks. Children who received the intervention were found to have increased phonological awareness skills compared to the low socioeconomic control group (Hagans & Good, 2013). However, the phonological awareness intervention did not increase at-risk children's phonological awareness skills enough to remove the disparity between children from low and middle or high socioeconomic backgrounds. Fälth, Gustafson, and Svensson (2017) were, however, able to decrease the gap in phonological skills between children from high and low socioeconomic backgrounds. In their longitudinal study, Fälth and colleagues measured the effects of a phonological awareness intervention with articulation on Swedish preschool children. Based upon their pre-test results the experimental group was divided into two subgroups - those at-risk for reading difficulties and those not at risk. They found both groups significantly improved their word decoding and phonological awareness skills at post-test and six months follow up, compared to a control group. These results pertained to words

and letter sounds taught throughout the programme as well as new letter sounds and words that were not included in the intervention. This suggests that phonological awareness skills have a transfer effect from the explicitly trained letter-sound combinations to other sounds and letters, which facilitates word decoding. Transference of phonological skills has also been found by Torgesen et al. (2001) and in children at-risk for literacy problems due to hearing impairment by Werfel, Douglas and Ackal, (2016). Hagans and Good (2013) were unable to increase children's phonological skills enough to remove the ever-expanding gap between Grade 1 children from high and low socio-economic backgrounds. Fälth et al., (2017) on the other hand was able to significantly increase the phonological awareness skills of preschool children. The main difference between these two studies, and what may have facilitated Fälth and colleague's success, was the implementation of an intervention programme with preschool-aged children. Because of this Hagans and Good (2013) and Fälth et al. (2017) in conjunction with Gorard and See (2013) and Torgesen et al. (2001), recommend, that phonological awareness interventions or programmes be implemented in kindergarten or pre-kindergarten to close or minimise the gap earlier.

As aforementioned, children who have dyslexia or a family history of dyslexia are at-risk for poor early literacy skills. Musa and Balami (2016) examined the effects of a phonological awareness training programme on children diagnosed with dyslexia. In this study, 15 participants in Year 2 completed a phonological awareness training programme for eight weeks. This programme focused on word identification, word deletion, word rhyming and word blending. The results showed that phonological awareness training had a significant effect on improving the reading performance of children with dyslexia.

Petrill, Logan, Sawyer and Justice (2014) found, in children with language impairments, that the quality of children's home literacy environment, such as book availability and frequency of being read to, greatly affected their emergent literacy skills. Similar findings have been found by Sonnenschein and Sun (2017) in the early reading and math skills of children from different racial and ethnic backgrounds. In their study, associations between children's early reading and maths skills and ethnic/racial background were mediated by parents' knowledge of children's development and their home literacy environment. Both studies address the importance of increasing parents understanding and knowledge of which literacy aspects and skills to focus on at home, and of educationally relevant activities. Fostering such development with parents in the home may be a way to effectively decrease the risk of literacy deficits.

Henning et al. (2010) carried out similar research, focusing on the long-term outcomes of interventions for socially disadvantaged children. In their study, participants had completed a short-term, classroom-based oral language and phonological awareness intervention in preschool with positive results. Two years on, researchers wanted to know if these positive outcomes had been maintained and transferred to other areas of literacy. Children's phonological awareness, grammatical skill, vocabulary knowledge, reading comprehension and auditory comprehension were all measured. They found no differences between the literacy skills of children who had received the intervention in preschool and those who had not, however, the entire cohort performed below the average range for the general population. Comparable results were found by O'Connor, Arnott, McIntosh and Dodd (2009). In a longitudinal study, they investigated the outcomes of socially disadvantaged children in Grade 2 who had received a whole-class phonological awareness intervention in preschool. This research found that children who had received the intervention in preschool

performed similarly to their peers. The gains made in language and phonological awareness failed to facilitate further literacy development. However, individual children's profiles indicated that a subgroup of children who received the preschool intervention maintained their improved outcomes at Grade 2. Overall the results of the study suggested that while the whole-class phonological awareness and language intervention was able to produce short term gains, it failed to produce long term results for the majority participants. These results suggest that brief interventions, while initially providing positive effects, may not be enough to sustain socially disadvantaged children's literacy skills. It could be argued that intervention programmes need to be longer in duration or be continued by teachers or parents once formal schooling starts for long term results. It also raises questions about the effectiveness and long term outcomes of individual interventions compared to group interventions.

These studies demonstrate that phonological awareness-based intervention programmes can be an effective way of increasing the early literacy skills of both typically developing preschool children and preschool children who are at-risk for their literacy development. Intervention programmes designed to improve children's phonological awareness, however, need to teach a range of phonological skills and be targeted towards pre-school aged children to minimise any gaps before the commencement of formal schooling. Research also suggests that one-off interventions may not be effective in producing long-term outcomes. As demonstrated in research by Fälfth et al. (2017), O'Connor et al. (2009) and Hagans and Good (2013) improving children's phonological skills alone is often not sufficient to increase children's literacy and reading proficiency. These findings are in accordance with the SVR model. Facilitating the development of children's word decoding skills only makes up part of reading comprehension. These interventions may have been more effective if they also included the development of children's linguistic comprehension skills.

### *Vocabulary Interventions*

Vocabulary development is very knowledge-based compared to skills-based phonological awareness programmes. Vocabulary interventions often focus on both teaching children new words, as well as, helping them to build strategies which help them to delve deeper into texts for added linguistic comprehension. Ruston and Schwanenflugel (2010) examined the effects of children participating in twice-weekly, 25-minute, intensive conversations with a trained adult for 10 weeks. These conversations were semi-scripted and included frequent use of rare words and open-ended questions. Ruston and Schwanenflugel (2010) found that children who received the intensive conversation intervention showed greater growth in their expressive vocabulary than children in the control group who received no intervention. These results suggest that relatively small amounts of cognitively and linguistically complex conversations with a trained adult can be useful for improving the language of children with low vocabularies.

Spencer et al. (2012) conducted a similar study to Ruston and Schwanenflugel (2010); however, instead of having children participate in intensive conversations, participants listened to recordings of stories with embedded vocabulary and comprehension lessons. This study included nine children from kindergartens in low-income areas. Participants listened to recordings of a total of 10 automated stories while following along with a physical picture book. Stories included two target Tier 2 vocabulary words and three story comprehension questions. Stories were repeated multiple times across the study. Spencer et al. (2012) found a moderate increase in participant's word knowledge, with children on average learning eight out of 18 of the targeted vocabulary words. However, less consistent results were found with children's comprehension of the stories. The gains found in vocabulary word knowledge

were greater than results found in other vocabulary studies (e.g. Justice, Meier & Walpole (2005) and Penno, Wilkinson & Moore (2002)), suggesting that having children learn new vocabulary words through a combination of audio and visual components may be an effective technique for developing vocabularies.

Cohen and Johnson (2011) investigated children's acquisition of new vocabulary words through different imagery interventions. This study included three different intervention conditions: word only, dual coding, and image creation. In the word only condition, participants were given the vocabulary word verbally. In the dual coding condition, participants were given the word verbally alongside an image to represent the word. In the final condition, image creation, participants were given the vocabulary word verbally and were asked to create an image to represent the word. The study included 15 participants and used a Latin square design, so all participants rotated through the three different intervention conditions with different vocabulary words. Word categories included animal and habitat words, musical instrument words, and science words. Participants were then tested on the number of words they learnt on a comprehension measure. No statistically significant difference was found between the intervention conditions across the word categories. However, a significant difference was found between the word only and image creation conditions within the science word category. Students reported it was easier to learn and remember words in the image creation condition. These findings suggest that linking words to images or creating personal representations for words may facilitate students learning of new vocabulary. However, one limitation of this study may have been the vocabulary words chosen, which were, predominantly, Tier 3 words. These words were all very specific to a narrow context, and may not have been able to provide the widest gains and generality for children. The types of words children learn, and especially the words that

vocabulary interventions focus on, are almost as important as the techniques used to teach them. Justice, Schmitt, Murphy, Pratt and Biancone (2014) found that vocabulary interventions used in public schools taught basic, lower level words, and few of these words were academically relevant. How, and through which methods, children's vocabulary can be increased and diversified has been the subject of much research.

Shared reading interventions are a very common technique for developing and growing young children's vocabulary and other literacy skills. These interventions often involve a parent, teacher, or other professional reading to a child and discussing the text and linking words, which can further children's comprehension and vocabulary development past reading the text alone. One study by Gonzalez et al. (2014) examined preschool teacher's extra-textual discussion before, during, and after reading to a group of children. The study also examined the frequency, type, and duration of teacher questioning, and its effect on children's receptive and expressive vocabulary. This study found that time spent discussing the text after reading was significantly related to children's expressive vocabulary. The duration of teacher associated questioning was significantly related to children's receptive vocabulary. These findings are supported through research by Waisk and Hindman (2014), Bojczyk, Davis and Rana (2016) and meta-analyses conducted by Marulis and Neuman (2010; 2013). These meta-analyses evaluated how vocabulary interventions affected children's word learning (Marulis & Neuman, 2010) and how they affected children at-risk for their literacy development (Marulis & Neuman, 2013). Interestingly, in both reviews, Marulis and Neuman (2010; 2013) found that children from higher socioeconomic backgrounds significantly benefited from interventions and made more substantial gains than children from lower socioeconomic backgrounds. They also found explicit instruction to be more effective at enhancing vocabulary in comparison to implicit activities.

Other interventions have focused on developing children's vocabulary via play-based interventions. These interventions use play to explicitly and implicitly teach children new vocabulary words in a comfortable setting, while being able to link these new words to the child's toys and surroundings. Children in preschool or kindergarten spend a significant portion of their day playing, therefore, it creates a naturalistic setting for building children's vocabulary. Han, Moore, Vukelich and Buell (2010) explored how play-based interventions affected the vocabulary learning of at-risk pre-school children. This study looked at two vocabulary teaching protocols: Explicit Instructional Vocabulary Protocol (EIVP) and the shortened EIVP with the inclusion of a play session (EIVP+play). The study included 49 low-performing students aged between, four and five years old. Participants were split into two groups and received either EIVP or EIVP+play through two, 30 minute sessions a week, over four months. In total, the participants were taught 64 words. Han et al. (2010) found children who participated in the EIVP+play condition showed more growth on both expressive and receptive vocabulary measures than participants in the EIVP condition. Children in the EIVP+play group also showed a steeper growth trajectory on the curriculum-based measurement tool.

Similar results have been found by McLeod, Hardy and Kaiser (2017) who investigated the effectiveness of a play-based intervention on the acquisition of vocabulary in at-risk preschoolers. This study specifically examined the Enhanced Milieu Teaching (EMT) techniques that were embedded into play sessions. EMT is a naturalistic play-based method for developing children's language. It has been carefully researched and found to be effective at increasing oral language and vocabulary diversity. Play follows the child's lead, and adults respond positively to the child and copy their actions. EMT uses time delays, open-ended questions, choice questions, and 'mand model' (in which the interventionist models the



vocabulary and has the child repeat it) to prompt children to use the target language. Correct responses are reinforced by the consequences of play. For example, in a time delay prompt the interventionist may hold up two toys and expectantly look at the child. When the child chooses a toy, and therefore uses the target language, the action is reinforced by getting to play with the toy. The study included two, three-year-old boys. The study used three sets of materials. Each set included five target words (e.g. mixing bowl, lotion, decorate, bigger, smaller), an assortment of theme-based toys and a researcher-developed book. Books contained each of the target words using a play-based schema in connection to the theme-based toys. Children participated in 20-minute play sessions with the interventionist five times a week. Sessions included 10 minutes of book reading (where target words were not prompted) and then 10 minutes of EMT play. The interventionist would use the five target words in conversation at least twice throughout the play session. This study found that after the play-based EMT intervention, both participants used all of the target words in each set of materials unprompted. The two participants differed in their maintenance of these words, however, both continued to perform well above their baseline levels. Both of these studies suggest that play may be an effective tool for literacy interventions in at-risk, preschool-aged children, however, this has not been researched thoroughly in home settings.

These studies demonstrate vocabulary interventions can be an effective tool for developing children's early oral language and linguistic comprehension skills. Research suggests that socioeconomic status influences children's educational development. Therefore, there is a strong need for early, effective vocabulary interventions to give students, who are at-risk, the best start possible. As with phonological awareness intervention programmes, facilitating the development of vocabulary knowledge alone is inadequate to help children become successful readers. Vocabulary knowledge in combination with phonological

awareness sets children up with the skills necessary to decode oral and written language and the linguistic comprehension knowledge to understand and link words. These abilities in conjunction, are what set children up to achieve and thrive in reading and writing in school.

### **The Role of Parent's in Children's Literacy Development**

During the formative years, children are dependent on their parents/caregivers for everything. It is this relationship which builds a child's early knowledge of the world and educational beginnings. Children develop their early literacy skills implicitly through everyday interactions, such as shared book reading and play with their parents and peers, as well as through parents' explicit instruction of themes such as the names colours, shapes, vehicles or animals. Research shows that children whose parents are involved and engaged in their child's education, have better attitudes towards school and are better behaved in educational settings (Burgoyne et al., 2018). These children also achieve better on standardised tests than children whose parents are not as invested or engaged (Huat See & Gorard, 2013; McNeal Jr, 2014).

In a recent study, Burgoyne et al. (2018) evaluated the effectiveness of a parent-delivered early language enrichment programme for preschool-aged children. They conducted a randomised control trial with 208 children living throughout the United Kingdom. They found that children who received the parent delivered language programme made significant improvements in their language and narrative skills. These gains were maintained six months post-test, when they also scored higher on measurements of early literacy. Burgoyne et al. (2018) concluded that parent-delivered early literacy interventions can produce statistically and educationally significant improvements to children's literacy

development. These findings are consistent with those found by Pratt, Justice, Perez, and Duran (2015) and Sénéchal and Young (2008).

In a meta-analysis, Sénéchal and Young (2008) reviewed 16 parent-child literacy intervention studies and found parent involvement to have a positive effect on children's literacy and reading acquisition from kindergarten to third grade. They found that interventions in which parents tutored their children through specific literacy activities produced the most significant gains. Interventions in which parents only read to their child or listened to their child reading, were found to not result in any significant reading or literacy gains. Interventions which require parents to explicitly teach their children a range of skills may have broader outcomes and long-term effects. This is due to parents learning the literacy skills in conjunction with their child and children actively being engaged in the intervention. Compared to reading or listening interventions where there is less collaboration between parent and child.

A study by Niklas and Schneider (2017) found that a less intensive intervention, designed to support parents to provide specific elements related to academic success was effective at increasing kindergarten (Year 1 in New Zealand) children's phonological awareness. Parents were invited to participate in one information evening and a one on one dialogic reading session. Dialogic reading involved parents and children discussing books in detail and prompting the child to answer questions about the story and pictures. Families who chose not to participate were used as a control group. Children's home literacy environment, such as the number of books available in the home and frequency a week children are read to, and linguistic competencies were measured. Prior to the intervention, no differences were found between the experimental and control group on any of the study variables. After the

intervention, the experimental group had significantly improved their home literacy environment and children showed greater development in their phonological skills. Improving children's home literacy environment, parent's knowledge of literacy skills, and facilitating more parent-child interactions can help improve children's early literacy outcomes (Han, Schlieber, & Gregory, 2017; Niklas & Schneider, 2017)

In a year-long study, Ford, McDougall, and Evans (2009) investigated the effectiveness of a comprehensive educational intervention programme for low-income families. The programme, Let's Play in Tandem (Ford et al., 2009), was designed to improve children's school readiness through activities with their mother. It was aimed at developing pre-reading skills, basic numerical skills, and general knowledge. Let's Play in Tandem is delivered in four stages, with each stage lasting 10 weeks. The programme included weekly home visits from a project worker to deliver and demonstrate new activities and answer any questions. The study included 60 children with a mean age of three years - 30 in the intervention group and 30 in the control group. Researchers found that, immediately following the intervention programme, children in the intervention group outperformed their matched peers in measures of academic knowledge, inhibitory control, and receptive vocabulary. At a four-month post-test review, once the children had begun reception class (structured preschool, aged four), teacher reports favoured those who had completed the intervention programme. These children performed better in listening, writing, responding, mathematics and personal/social skills. Similar findings have been found by Dulay et al. (2019), Wood (2002) and Reese, Sparks, and Leyva (2010). These results demonstrate and support the effectiveness of parent-implemented, home-based intervention programmes for children's early academic skills.

Interestingly, Skibbe, Justice, and Bowles (2011) found contradicting results to Ford, McDougall and Evans (2009). Skibbe and colleagues' study included a shared reading intervention in which parent-child dyads read books with embedded phonological awareness tasks four times a week for twelve weeks. They found that mothers could not provide consistent levels of support to aid their child's learning over time. This was due to a decline in mother's support of the interventions concept and the quality of the instructional support provided to mothers over the course of the programme. Children's correct responses increased significantly in the phonological awareness tasks; however, their growth was lower than anticipated given the duration of the programme. These results suggest that supporting mothers throughout parent-led interventions, as Ford et al. (2009) did in the Let's Play in Tandem programme, may be a vital characteristic of these types of programmes. Continually supporting parents throughout interventions may increase consistent implementation, and therefore increase gains made in children's literacy development.

As the research above demonstrates, parents are children's first teachers and are an untapped resource, fully capable of successfully implementing literacy interventions with their children with long-term outcomes. They may, however, require more support and guidance than trained professionals. Improving parents own literacy skills may also be an efficient technique to increase children's emergent literacy skills and the home literacy environment before primary school, especially for those children deemed at-risk.

### **The New Zealand Context**

In contrast to other countries, New Zealand's education system differs from other's around the world. When children enter Grade 1 in North America, they are expected to have a certain level of understanding about how the sound-based arrangement (phonemes, syllables,

and their letter representations) of their language works. They are also expected to have some phonological skills such as rhyme awareness and phoneme identification (Harper, 2011).

Children in the US, Canada, and the United Kingdom (UK) often start formal schooling at three or four years old, attending structured pre-kindergarten or nursery and then kindergarten before entering Grade 1. In contrast, children in New Zealand legally only have to start school by their sixth birthday and the New Zealand early childhood curriculum, Te Whāriki, fails to set out any specific requirements or define emergent literacy skills for children under six years old.

Te Whāriki places four broad principles at the centre of children's early learning: empowerment, holistic development, family and community, and relationships (Ministry of Education, 1996). Under these four principles are five strands: contribution, communication, exploration, wellbeing, and belonging. These principles and strands are woven together to create a holistic curriculum designed to meet and develop the needs of all young children in New Zealand. The beliefs and practices of most parents in New Zealand have been found to be consistent with the learning outcomes contained within Te Whāriki (Zhang, 2017). While this holistic outcome focus on important aspects of children's early education, it lacks concrete expectations for children early literacy skills.

The learning outcomes within the communication principle include aspects of literacy and language. These outcomes include understanding oral language and using it for a range of purposes, recognising print symbols and concepts and using them with enjoyment, meaning and purpose and enjoying hearing stories and retelling and creating them (Ministry of Education, 1996, p. 25). However, these learning outcomes allow a large amount of interpretation for early childhood educators on what early literacy and language skills to

teach, how to teach them and what stage of development children need to be at by the time they start school.

Approximately 98% of New Zealand children attend a preschool education in some form and 40% of four-year-olds attend a government-funded kindergarten (Westerveld et al., 2015, p. 2). There is a limited amount of research within the New Zealand context of how effective this education system is, or how children are supported in their development of these crucial emergent literacy skills (McLachlan & Arrow, 2010; Westerveld et al., 2015).

In New Zealand, English as a second language learners are a group which need particular consideration, due to the population's cultural diversity. Most early childhood and primary classrooms in New Zealand are state-funded and primarily speak English, with the inclusion of some Te Reo Māori (Ministry of Education, 2019). There are, however, Kura kaupapa Māori schools, which speak Te Reo Māori and teach Māori values and beliefs, as well as, private schools and charter schools. These schools follow the New Zealand Curriculum or the Māori curriculum, Te Marautanga o Aotearoa, but may choose to follow their own religious or philosophical beliefs and may teach and speak in the language of their choosing.

Formal schooling, in English based classrooms, can provide obstacles for children for whom English is not their first language, who are not fluent in these English or for those whose parents do not speak English. Furthermore, English is an opaque language due to the number of representations that can be used for phonemes and grapheme correspondences. These factors can provide many obstacles for learners within New Zealand early childhood and primary classrooms.

## **Gaps in Existing Research**

Children's emergent literacy skills play a significant role in their future educational achievement. Reading ability is the peak of early academic accomplishment, which requires that children develop both word decoding and linguistic comprehension skills in order to become successful readers. In New Zealand, many children are entering primary school with underdeveloped skills and are consequently falling behind their peers. Research shows that the gap between children with strong emergent literacy skills, and those without, only increases throughout schooling and can have negative impacts which extend into adulthood.

Although there is a vast quantity of intervention programmes available, most focus on either code-related skills or meaning-related skills and not both in conjunction. The most effective interventions have been found to incorporate both types of skills, be implemented during children's pre-school years, and be functional and relatable to children's everyday lives. Typically, literacy programmes that develop both types of skills are implemented by professionals specifically trained in literacy interventions. However, research has demonstrated parents may be effective in the implementation of early literacy programmes, and that they may be able to deliver broader long-term outcomes. Parents have the advantage of being able to facilitate the development of these emergent literacy skills earlier than schoolteachers and spend longer periods of time with their children, within naturalistic settings. Research is needed to further explore the role parents can play in facilitating the development of their children's phonological skills and vocabulary knowledge prior to commencing formal schooling.



## **The Current Study**

This study sets out to investigate the effectiveness of a parent-led, home-based early literacy programme for four-year-old children. To sit within the SVR model (Gough & Tunmer, 1986), this programme is designed to improve children's word-decoding skills through phonological awareness activities as well as linguistic comprehension through diversifying and growing children's vocabulary. This programme separates itself from other early literacy and language programmes directed at preschool-aged children, such as Read it Again (Justice & McGinty, 2013) and The Incredible Years (Webster-Stratton, 2013) by being implemented within the home by parents, instead of by trained professionals. The programme is designed to provide parents with simple and easy to implement literacy activities and games which can be used during everyday activities, such as driving, grocery shopping and making dinner.

Specifically, this study addresses the following questions:

- (1) Can a parent-delivered, oral-based early literacy programme, implemented in the home environment, improve the phonological awareness skills and vocabulary knowledge of four-year-old children?
- (2) Are parents able to effectively and consistently implement an early literacy programme and facilitate the development of their children's emergent literacy skills?

## **CHAPTER 3**

### **METHOD**

This chapter will review the method and literacy programme utilised in this research. It will discuss the participants, procedure and materials, as well as, the conception and operation of the early literacy programme and its components.

The early literacy programme was implemented by parents with their children at home, within everyday activities. Participants first completed the phonological awareness portion, followed by the vocabulary portion. Children were assessed on their early literacy skills at three data collection points; at baseline prior to the intervention, at a midpoint between the two portions of the programme, and post-intervention. Parents participated in fortnightly coaching sessions with the researcher throughout the duration of the programme and were provided with continuous support from the researcher. Semi-structured interviews were conducted with parent's post-intervention to explore their experiences, feedback, and outcomes of the programme.

#### **Participants**

Participants for this study were recruited from urban kindergartens in Christchurch. The area was selected for its cultural and socioeconomic diversity. Prior to the commencement of the study, ethical approval was granted by the Educational Research Human Ethics Committee (ERHEC Ref: 2019/14) and consent was gained from the Kindergarten Associations' Manager of Innovation and Collaboration. The manager selected kindergartens they viewed as suitable for this research. Written consent was obtained from the Head Teacher at three local kindergartens. Recruitment had two phases. Phase 1 was the screening phase and included the Head Teacher putting forward children who met the initial

eligibility criteria for this study. The eligibility criteria included children who turned four years old in the first four months of 2019, spoke English fluently, and whom the Head Teacher viewed would benefit from being included in a programme that would provide literacy and language activities. Phase 2 included having lower scores on either of the two screening measures. These are discussed below.

Of the three kindergartens who gave their consent, one had no parents willing to participate; one had parents who chose to participate in Phase 1 only. The final sample came from the third kindergarten and included four children, of whom one was female (Sarah) and three were male (Aarav, Daniel and James). Pseudonyms are used for all participating children and their parents. Attempts to recruit at additional kindergartens were not successful.

Consent was obtained from parents prior to beginning the screening in Phase 1, and again before the commencement of baseline measurements for the intervention. Assent was obtained from the children prior to the screening activities, and again before the baseline measurement activities. The main contact parent for all four children was their mother.

The original goal from the recruitment processes was to find children who were at-risk for poor early literacy development, which is why screening took place before the implementation of the early literacy programme. However, the difficulties in recruiting participants resulted in moving forward with the participants who had lower scores on the two screening measures but may not have been classified as “at-risk”.

### *Participant 1*

Daniel is the youngest child of three children, with an older brother and sister. English is his first language. At baseline assessment, he was four years, three months of age. His

mother reported that he sometimes got caught up with words and stammered occasionally. Daniel also attended another preschool once a week.

#### *Participant 2*

James is the middle child with a younger sister and older brother. English is his first language. At baseline assessment, he was four years, two months of age. James' mother reported that he was quite shy, especially with adults, and often took a long time to become comfortable enough talk to or around new people.

#### *Participant 3 and Participant 4*

Sarah and Aarav are twins with no other siblings. At baseline assessment, they were four years, five months of age. Their family immigrated to New Zealand from India when the children were infants. Both children were fluent in English and receptive in their mother's native language of Surgujia, which she speaks at home. Aarav can speak a little Surgujia but both children predominantly speak to her in English.

### **Procedures**

The current study employed a single case, mixed-methods design. The original framework for the research involved a sequential, delayed control design, however, the aforementioned difficulties in recruitment resulted in the shift to a case study framework. If enough participants had been recruited, participants would have been randomly split into two groups with group one completing the phonological awareness portion of the literacy programme first, followed by the vocabulary portion. The second group would complete the vocabulary portion followed by the phonological awareness portion. This design would have allowed for a deeper understanding of the acquisition and interaction between phonological

awareness skills and vocabulary knowledge and whether implementing one before the other is advantageous. In the current study, all participants completed the phonological awareness portion followed by the vocabulary portion.

The literacy programme included two six-week portions, with a two-week break in between. All testing was completed at the children's kindergarten, except for one probe which was conducted at the child's home during the school holidays when the kindergarten was closed. See Appendix 1 for the full programme schedule. Participants were measured during three assessment periods. Participants also completed fortnightly probes throughout the programme. Parents participated in a fortnightly one-on-one coaching session with the researcher, as well as, follow up phone calls on alternate weeks. Parents partook in a semi-structured interview after the completion of the programme to obtain feedback. The assessment schedule is presented in Table 1.

All of the families in this study commenced the programme at the same time. Due to illness and work commitments, James' family extended the gap between programmes to three weeks. Aarav and Sarah's family required an extra week in between Week 11 and Week 12. The in these instances, children maintained their personal assessment schedule, this meant some were tested at the kindergarten during one week and the others the next week.

Table 1  
*Assessment Schedule*

Week of Programme	Assessment Type	Measures Completed
	Screening assessments	Recalling sentences task Initial phoneme identification task
Week 0	Baseline measurements	British Picture Vocabulary Scale Sentence structure task Word structure task Expressive vocabulary Phonological awareness composite Phoneme blending task Phoneme segmentation task
Week 3	Probe	Phonological awareness probe 1
Week 5	Probe	Phonological awareness probe 2
Week 7	Mid-point measurements + probe	British Picture Vocabulary Scale Phonological awareness composite Phoneme blending task Phoneme segmentation task Initial phoneme identification task Phonological awareness probe 3 Vocabulary probe 1
Week 11	Probe	Vocabulary probe 2
Week 13	Probe	Vocabulary probe 3
Week 15	Post-test measurements + probe	British Picture Vocabulary Scale Phonological awareness composite Phoneme blending task Phoneme segmentation task Initial phoneme identification task Phonological awareness probe 4 Vocabulary probe 4
Week 16	Parent interview	

## Materials

### *Screening Measures*

Participants were screened using two measures: the recalling sentences task from the Clinical Evaluation of Language Fundamentals – Preschool, second edition (CELF-P2) (Wiig, Secord, & Semel, 2004) and the initial phoneme identification task from the New Zealand Phonological Awareness Database (Carson, Gillon, & Boustead, 2013). The CELF-P2 is a language assessment specifically designed for preschool-aged children. It includes a wide range of measures designed to assess early language and literacy skills. The recalling sentences task used required the researcher to read aloud sentences increasing in length and complexity, with the child repeating the sentence back. Children were marked on their ability to accurately repeat back all of the words in the sentence in the right order. The initial phoneme identification task was a computerised task. Children are given a target sound and asked to select the picture which started with the same phoneme as the target phoneme. Children completed all computerised tasks on a touch screen laptop with headphones to avoid disturbances. Table 2 displays participant's results on the two screening measures. All four children were found to meet the criteria for Phase 2.

Table 2  
*Participant's Results on the Screening Measures*

	IPID	RS
Daniel	6	13
James	3	0
Sarah	4	12
Aarav	6	13

*Note.* IPID=Initial Phoneme Identification, RS=Recalling Sentences

### *Intervention Measures*

The baseline measurement included literacy and language measures. Children's receptive vocabulary was measured using the British Picture Vocabulary Scale 3<sup>rd</sup> Edition (BPVS) (Dunn & Dunn, 2009). The BPVS is a vocabulary assessment which can measure receptive vocabulary of children from 3 to 16 years of age. Children were given a target word and shown four pictures. They were required to select the picture they thought best fitted with the target word. This picture-based measure is useful for measuring young children's vocabularies and can be answered non-verbally via pointing.

Children's language was measured using the sentence structure, word structure and expressive vocabulary tasks from the CELF-P2 (Wiig, Secord, & Semel, 2004). In the sentence structure task, the researcher read a short sentence, for example, "I can eat this" and the child was required to identify the correlating picture from four options. In the word structure task, the researcher read a short statement while pointing to a correlating picture and then read a second statement for a similar picture, pausing for the child to fill in the blank space. For example, "the dog is his, the cat is ...?" (pointing to a picture of a girl holding cat) the correct word being 'hers'. The expressive vocabulary task required the child to identify what was happening from a series of presented pictures using specific vocabulary. For example, "what is she doing?" (pointing to a picture of a girl riding a bike).

Phonological awareness was measured via the Comprehensive Test of Phonological Processing 2<sup>nd</sup> edition (CTOPP2) (Wagner, Torgesen, Rashotte, & Pearson, 2013) and included the elision, blending words and sound matching tasks. The elision task required children to say a word and then delete a syllable or phoneme from that word and to say the new word. For example, "Say bold, now say bold without saying /b/". In the blending words



task, children listened to a pre-recorded voice through headphones which asked them to blend segmented words. For example, “cow-boy”. The sound matching task required children to identify the correct picture from three options which started or ended with a given phoneme, “which of these pictures starts with a /s/ sound like sun?”

The rhyme detection task was adapted from Gillon (2001), in this task children were presented with three words, two of which rhymed, and one did not. Children had to select the word which did not rhyme. The blending and segmentation tasks used were from the New Zealand Phonological Awareness Database (Carson, Gillon, & Boustead, 2013). The computerised phoneme blending task provided children with a segmented word and asked them to blend the sounds and select the associated picture from three options. The segmentation task was adapted from the computerised version. In the adaptation, the researcher read out a word and children were required to verbally segment the word, instead of providing the number of phonemes in a word as in the original.

Midpoint and post-test measures both included the BPVS (Dunn & Dunn, 2009), phonological awareness composite from the CTOPP2 (Wagner et al., 2013), and the initial phoneme identification, phoneme blending and phoneme segmentation tasks from the New Zealand Phonological Awareness Database (Carson et al., 2013).

### *Probes*

Short probes were conducted fortnightly throughout each programme. These were created by the researcher and designed specifically to measure the skills and areas taught within each programme. The vocabulary probes were based on expressive and receptive language measures used in A Better Start (Gillon et al., 2019). The phonological awareness probes were adapted from Gillon (2001). Probes were usually conducted on a Monday.

The phonological awareness probes included five subsections: initial phoneme identification, final phoneme identification, blending, segmenting and rhyme. Each subsection included two to three examples, one practice item and five test items.

In the initial phoneme identification subsection, children were provided with a word and asked to identify the initial phoneme. This same format was used for the final phoneme task. Phonemes selected for these tasks were taken from the focus phonemes suggested during Week 1 and Week 2 of the phonological awareness programme from Lanza and Flahive (2012). In the blending task, children were provided with a word segmented into its phonemes. Children were asked to blend these phonemes and provide the whole word, for example, r-oo-f = roof. During the segmentation subsection, children were given a word and asked to segment it into its individual phonemes, for example, cat = c-a-t. Target words for these two subsections were selected from a combination of those provided as examples during Week 5 and Week 6 from the phonological awareness programme and common everyday words children would come across in stories and daily interactions. The number of phonemes in the words during these two subsections ranged from two to four.

The rhyme probe was adapted from Gillion (2001). In this task, children are provided three words - two that rhymed and one that did not. Children were asked to select the word that was the odd one out, or that did not rhyme. Words for this section were based upon the rhyme endings suggested in Week 3 of the phonological awareness programme. The order of the words was mixed throughout the five test items to avoid order bias. This task was initially completed verbally, however, after the first phonological awareness probe was completed, the researcher created small picture cards for each word to allow for this task to be answered by pointing instead of verbally.

The vocabulary probes included two tasks. In the expressive vocabulary task, children were given a target word and asked, “Tell me what (item) means?” “Use (item) in a sentence?” If the child did not respond they were given one additional prompt by saying, “Can you tell me another word that means the same as (item)?” This task included two practice words on which feedback was provided, and ten test words, on which no prompts or feedback were given. Of these ten words, five were focus words from the corresponding two weeks of the vocabulary programme. The other five were Tier 2 words chosen from the vocabulary measure created for A Better Start (Gillon et al., 2019).

The receptive vocabulary task was adapted from a measure created for A Better Start (Gillon et al., 2019). In this task, children were given a target word and asked to select the picture which best fit the target word from four picture options. This measure included three practice items and ten test items. Of the test items, five words were elaborated words selected from the corresponding two weeks of the vocabulary programme. The remaining five words were unelaborated Tier 2 words used in the original A Better Start measure. Feedback was provided during the practice items only. Different words were selected for the expressive and receptive measures in each probe. As there were only four vocabulary words a week, two words were selected from the supplementary Tier 2 word lists provided in the programme.

### *Parent Interviews*

Parents participated in a semi-structured interview with the researcher at the completion of the programme. This was designed to gain the parent’s feedback on the programme, and gain further insight into children’s development. The interviews included five identical questions for all parents as well as three to five more specific questions about children’s individual development and learning, these questions are presented in Appendix 2.

Qualitative data, such as feedback on children's development and the programme, was collected from parents during coaching sessions and follow-up phone calls. Kindergarten teachers also provided anecdotal feedback on children's development when they noticed something noteworthy or of particular interest. This information was collected by the researcher as field notes and was also used to help guide and adapt the programme to each individual child's needs and development, and to gain further understanding of the child's quantitative results.

### *Reliability*

Parents were asked to complete daily checklists of their implementation of the programme and to audio record one session a week on a provided voice recorder for reliability. The checklist included how long each day they used the programme and what activities they completed. It incorporated a space for parents to write any notes, progress, questions or comments to be reviewed during coaching sessions. The audio recordings were collected from parents during coaching sessions and reviewed by the researcher. If needed, the researcher provided any guidance or feedback to parents on their implementation in the recording during follow up phone calls or the next coaching session.

### **Intervention**

The literacy programme used in this study, the At-Home Early Literacy Programme, was created and developed by the researcher, Hannah Bennett, with the assistance and supervision of Alison Arrow and Amanda Denston. It was a 12-week programme which consisted of two six-week portions, one focusing on developing phonological awareness skills, the other on expanding vocabulary knowledge.

The At-Home Early Literacy Programme was designed to provide parents with an early literacy programme which they could implement throughout the day during regular activities, such as driving, cooking or grocery shopping. This element of the programme was fundamental to its implementation by parents, and incorporated elements of a play-based intervention. Introducing short, literacy-based games into regular activities was designed to make the programme smoothly integrate with family life. This flexibility of being able to utilise the programme whenever, wherever, was designed to maintain parents' interest and commitment. This format also allowed for literacy activities to be incorporated naturally into the child's existing routines and activities.

To enhance the implementation of the intervention, parents were supported throughout the programme by the researcher. This was accomplished through fortnightly one on one coaching sessions, follow-up phone calls and the opportunity for parents to contact the researcher at any time throughout the programme. As topics taught throughout the programme may be new to parents, coaching sessions and ongoing support allowed parents to feel confident in what they were teaching, while permitting the researcher to ensure that parents were implementing the programme's content effectively and correctly. Skibbe et al. (2011) found mothers could not provide consistent levels of support to aid their child's development of literacy skills. This was due to 'maternal support of concept' and 'quantity of maternal instructional support' decreasing over the course of the programme. Supporting parents and making the programme functional to parents and family's lives was hypothesised to increase the overall consistency and commitment of parents to the programme.

The programme was intended to be implemented for 20 minutes a day, five days a week, which amounted to a total of 100 minutes a week. These 20 minutes could be broken

up into multiple five- or 10-minute portions throughout the day. The programme was able to be used more or less frequently depending on the parent and child's enjoyment, willingness and motivation, thus, providing flexibility. The aim being to sustain parental engagement. The programme activities could be used with multiple age groups so that siblings, friends or family could be included in sessions.

Parents were provided with the first two weeks of the programme during the initial coaching session. Subsequent weeks were delivered every fortnight during coaching sessions. Parents were also given a portable copy of the programme on a small laminated card to keep in their handbag or car to prompt them during activities such as walks, school runs or supermarket trips.

Activities for each week were scaled, increasing in complexity. Activities selected for the programme were either created by the researcher, adapted from common games, such as I Spy, or were found in parent and teacher manuals. Parents were encouraged to adapt games to different situations and were welcome to create their own activities on condition that they taught the focus skill for that week.

#### *Phonological Awareness Programme*

The goal of the phonological awareness programme was to teach children phonological skills which are vital in facilitating children to learn to read, write and decode words (Harper, 2011; Fielding-Barnsley & Hay, 2012; O'Callaghan et al., 2016). The basis of the programme was to educate and demonstrate to children how spoken words are made up of phonemes; and how to manipulate, separate and combine these phonemes to create and decipher new words.

The phonological awareness programme was developed using a range of research articles, books, parents and teachers' manuals, webpages and existing literacy programmes to determine what skills needed to be taught and in what order (University of Oregon, 2019; Justice & McGinty, 2013; McDonald & Figueredo, 2010; Logsdon, 2019; Gillon, 2001; Terrel & Watson, 2018; Adams et al., 1998).

Terrel and Watson (2018) describe the most appropriate, evidence-based phonological skills to teach preschool-aged children. These are syllabication, rhyming, phoneme blending, syllable and sound deletion, syllable and phoneme segmentation and phoneme identification. While Adams et al. (1998) describe four phonological awareness skills children are projected to develop in kindergarten that include: word level - being able to recognize how many words are in a sentence; syllable level - being able to blend and segment phonemes in words with at least three syllables; rhyme level - being able to understand, recognize and generate rhyming words; and sound level - being able to identify and isolate beginning and ending sounds in words, segment and blend sounds in words and change a sound in a word to make a new word in games and songs.

The researcher wanted the programme to be verbally based so that parents could do the activities whenever and wherever they had the opportunity to, without being reliant on books, cards, or books. This also ensured that during activities, children were focusing on the sounds in words, and not confusing the letter representation which can create multiples sounds or words with silent letters. With these in mind, the researcher selected six phonological awareness skills:

1. Initial phoneme identification
2. Final phoneme identification

3. Rhyme
4. Alliteration
5. Phoneme blending
6. Phoneme segmentation

Parents were provided with a small introduction about each skill and why it is important, a weekly goal, five to six focus phonemes and three to five activities or games through which to teach each skill during the week. Focus phonemes for each week were selected from the *Lingui Systems Guide to Milestones* (Lanza & Flahive, 2012) and the *Comprehensive Literacy Resource for Kindergarten Teachers* (Adams et al., 1998). These resources outline the different sounds/phonemes that children typically develop and master at each age stage. The programme also provided examples of everyday words that parents, and children could use for each focus phoneme. These were provided in a table divided into three levels. Level one words were short, one-syllable words such as dog, duck, bed, gate and cake. Level two included two-syllable words, such as dinner, table and bottle. Level three words usually involved a phoneme blend or vowel team, such as **drive**, **train**, **grandma** and **broom**. An overview of the phonological awareness programme can be found in Table 3.



Table 3  
Phonological Awareness Programme Structure and Content

Week	Topic	Goals	Focus Sounds*	Activities
1	Initial Phoneme Identification	To identify the beginning sounds (phonemes) in words and differentiate between words that start with the same sound and those that don't.	/d//t//g//b//k/	I Spy, Grouping Likeness, Acting Up, Matching Sounds
2	Final Phoneme Identification	To identify the end sounds (phonemes) in words and differentiate between words that end with the same sounds and those that don't.	/d//t//f//k//m//ng/	I Spy, Grouping Likeness, Matching Sounds, Odd One Out (Advanced Activity)
3	Rhyme	To identify words that rhyme and be able to produce words that rhyme with the prompted word and to identify words that do and do not rhyme.	-at, -ad, -ing, -id, -ook	Nursery Rhyme, Matching Words, Odd One Out, Rhyme Tennis (Advanced Activity)
4	Alliteration	To produce pairs or short sentences of words that have alliteration and to differentiate between words that do and do not start with the same sound.	/d//t//g//b//k/	Colour Game, Name Game, Animal Game
5	Phoneme Blending	To be able to blend individual sounds in given words.	d-o-g, c-a-t, b-oo-k, m-a-p, t-r-ee, s-l-i-de, f-i-n-d, m-u-mm-y, p-l-a-te, d-a-dd-y	Name Change, Robot Talk, Guess What?
6	Phoneme Segmentation	To segment words into their individual sounds.	c-a-ke, s-e-n-d, c-a-n, r-a-m-p, s-t-ar, s-o-l-d, b-i-n, f-i-n-d, h-ou-se	I Spy, Hear the Sounds, Stretching Words

*Note.* \*Week 5 and Week 6 included examples of segmented words rather than focus sounds.

Games for the first two weeks encouraged children to identify the initial and final phonemes in words, differentiate between different phonemes, and find words that started or ended with a given phoneme. Games and activities for Week 3 urged children to differentiate between words which did and not rhyme, fill in the rhyming word when left blank in nursery rhymes and create rhyming words for a given word. Games for Week 4 asked children to come up with words or names that started with the same phonemes as a given word. These activities could be expanded by creating alliterative ‘silly sentences’ from all the words children came up with.

As blending and segmenting skills are deeply interrelated, parents were given the opportunity to implement both weeks in conjunction or separately. Activities for these two weeks encouraged children to blend phonemes segmented by their parent and recognize the word, and segment words into their individual phonemes. Parents were advised to keep the sounds fluid and not leave too large a space between phonemes, as this can confuse children and impede their own segmenting (Gagen, 2007).

Activities and games for the phonological awareness programme were adapted from Terrel and Watson (2018), Adams et al. (1998), Geiger (2018), Williams (2019), Reading Rockets (WETA, 2019) and Nancollis et al. (2005).

### *Vocabulary Programme*

The goal of the vocabulary programme was to increase and diversify children’s individual vocabularies and provide them with knowledge of Tier 2 words they could use and understand in multiple contexts. By the time children are four years of age, they should have knowledge of major word classes such as nouns, adjectives, verbs, adverbs etc.

The vocabulary section followed a similar format to the phonological awareness programme in that each week focused on a different subcategory of vocabulary. The

researcher used Justice and McGinty's (2013) Read it Again Pre-K, and Liddy, Nicholls, Peach and Smith's (2013) adaptation Read it Again: Foundation Q manuals, to help create the vocabulary portion. Read it Again (Justice & McGinty, 2013) is a curriculum supplement created to help grow and improve preschool-aged children's foundational language and literacy skills. This programme provides systematic, explicit instruction on how to build children's literacy and language skills, including vocabulary, print knowledge, narrative and phonological awareness. This programme is structured over 30 weeks with two lessons a week, teaching all four principles simultaneously. The researcher used the Read it Again vocabulary section to shape the basis for this vocabulary programme. Justice and McGinty (2013) outline six objectives to increase and strengthen children's vocabulary:

- (1) To understand and use words for the names of unfamiliar objects, actions, and that describe things and actions (nouns, verbs, adjectives and adverbs).
- (2) To understand and use words representing spatial concepts.
- (3) To understand and use words representing time concepts.
- (4) To talk about the meaning of new words, including how words can have multiple meanings.
- (5) To understand and use words that represent feelings.
- (6) To understand and use words that represent thinking processes.

As the Read it Again (Justice & McGinty, 2013) programme is a supplement to aid teachers in supporting what is taught in kindergartens, it is implemented over 30 weeks. However, this programme had only six weeks. The researcher decided to expand objective one - understanding and using new nouns, verbs and adjectives (excluding adverbs for time

restraint reasons) into the first three weeks of the programme. The kindergarten teachers advised that time concepts, such as first, second, third, before and after, and spatial concepts, such as, over, under, above, and beside were discussed frequently in the classroom so these were omitted from the programme. The researcher selected the following topics for the vocabulary portion of the programme:

1. Nouns
2. Verbs
3. Adjectives
4. Shapes and Sizes
5. Emotions
6. Thought Concepts

To support families in their use of the programme, the researcher wanted to provide a short list of vocabulary words each week to support their implantation of the programme. Research (Justice et al., 2005; Spencer et al., 2012; Penno et al., 2002) suggests that children are only able to learn a limited number of words a week, and that they often retain only half of the words they are taught. Therefore, four words per week were selected to be explicitly focused on. A list of additional Tier 2 words that fit each week's theme was provided to parents to offer more options to diversify their own vocabulary and include if they wished. Beck and McKeown (2002) recommend that educators consider the following when choosing vocabulary words: How generally useful is the word? How does the word relate to other words, to the ideas that students know or have been learning? What does the word bring to a text or situation? Keeping these questions in mind, vocabulary words were chosen from lists

of Tier 2 words from Hyde Park Central School District (2015) that also supported existing vocabularies and environmental contexts.

Research by Marulis and Neuman (2010; 2013) demonstrates that children learn vocabulary words best through explicit instruction and repetition. Parents were guided during coaching sessions to go through the focus words at the beginning of the week with their child, and explicitly discuss words definitions. This included if a word had multiple meanings in different contexts, uses and they were asked to give an example of the word in a sentence (these were all provided to parents within the programme). Although parents were supplied with focus words, they were not limited to these. The goal of the programme is to expand and strengthen children's total expressive and receptive vocabulary, therefore, parents were encouraged to teach and use new words relating to the focus topic wherever they could. An overview of the vocabulary programme is presented in Table 4.

Each week the programme included an introduction to the focus of the week, why it was an important area of vocabulary knowledge, a goal for the week, the four vocabulary words, definitions and example sentences, and a short list of additional tier two words. Each week included two to three games, and suggested activities of ways to incorporate the vocabulary words into everyday activities

Week 1 focused on expanding children's knowledge and understanding of nouns. The researcher chose Christchurch specifically. This is the city where all the participants resided, and thus it makes up a part of the family's identity. Other Tier 2 words suggested to parents this week included artifact, narrator, pedestrian, and obstacle. Games for this focus encouraged children to name objects around them and classify objects into their respective categories.

Table 4  
Vocabulary Programme Structure and Contents

Week	Topic	Goals	Focus Words	Games	Event-Based Activities
1	Nouns	To expand knowledge and understanding of unfamiliar nouns.	Christchurch, estuary forest field	I Spy, Memory Game	Have children help in the kitchen and go through the names of different foods, kitchen utensils and appliances. Going through different location names, business names or types or aspects of nature while driving or walking. Drawing a picture or writing a letter to someone and posting it in the mail.
2	Verbs	To expand knowledge and understanding of unfamiliar verbs.	analyse search demonstrate create	Obstacle Course, Mirror Me	Have parent describe their actions in the kitchen such as dicing, mixing, grating, slicing and wrapping. Selecting characters in movies, television shows, and books or surrounding environment and discussing their actions such as walking, biking, searching, demonstrating or creating.
3	Adjectives	To expand knowledge and understanding of unfamiliar adjectives.	rough heavy flimsy tough	I Spy, Scavenger Hunt, 20 Questions (Advanced Activity)	Describing the weather throughout the day and how it affected the surrounding environment. Comparing and contrasting foods, objects, buildings and toys.
4	Shapes and Sizes	To expand knowledge and understanding of unfamiliar shapes and sizes.	circular square enormous tiny	I Spy, Scavenger Hunt, 20 Questions	Comparing sizes and shapes of fruits and vegetables, cars, trucks, toys and books. Ordering objects such as tools, stationary or parts of nature such as leaves, twigs and acorns, by size and giving each one a different size label
5	Emotions	To expand knowledge and understanding of unfamiliar emotions.	frustrated exhausted surprised disgusted	Changing Faces, Emotion Check-in	Make different faces with food, point out characters in books or movies use cues such as facial expression, situation, context and experiences to discuss feelings Use questions to have children reflect on what makes them feel different emotions.
6	Thought Processes	To expand knowledge and understanding of unfamiliar thought processes.	believe dream imagine think/thought	Goal Setting, Imagination Creation	Placing emphasis on characters thought process in books and movies, providing children with choices and asking for their opinion, “What do you think we should do next? What do you think we could make with tomatoes this week?

Week 2 of the programme focused on understanding and expanding children's use of new verbs. These words were chosen as they are Tier 2 versions of words children and parents already used, such as look, show and make, which could be easily incorporated into daily life. Other Tier 2 words suggested to parents this week included illustrate, examine, indicate and identify. Activities for this week asked children to identify their own physical and mental actions, as well as, the actions of others.

Week 3 focused on using and understanding new adjectives. This was continued into Week 4 with a focus on shapes and sizes. Adjectives describe the world around us, give depth to stories and modify nouns. Increasing children's knowledge of adjectives supports their ability to describe their surroundings and their ability to produce more complex descriptions and stories, as well as, increasing their reading comprehension. Words for these two weeks described children's environments, toys, and favourite topics such as dinosaurs or trains. These words can also have different meanings depending on the context they are used in. Other Tier 2 words suggested in Week 3 and Week 4 include crunchy, toasty, freezing, beautiful, pyramid, expansive, towering, and miniature. Children were encouraged to compare and contrast throughout these two weeks and to describe different aspects of their environment.

Week 5 focused on understanding, identifying and describing new emotions. Being able to label your own emotions, as well as, the emotions of others can assist children in making new friends, minimise social conflict, and help children understand, and therefore regulate their emotions. Children who are socially competent have been shown to have greater academic success (Webster-Stratton & Reid, 2004). Understanding different emotions also benefits children's reading comprehension and writing ability. Other Tier 2 words suggested for this week include disappointment, overwhelmed, anxious, inspired and excited. Games and activities for this week urged children to try identifying their emotions, as well as,

the emotions of others and link these feelings to causes or moments. Parents were asked to model different emotions and discuss how different events in their day made them feel different emotions.

Week 6 focused on using and understanding words related to thought processes. While an abstract concept for some children it is important for reading comprehension and helps children to categorize and understand their own, and others, thinking. Additional Tier 2 words suggested for this week included question, remember, guess, and forget. Games and activities for this week required children to discuss the different ways they think and encouraged parents to give their children choices wherever possible to help children analyse their thought processes.

### *Coaching Sessions*

To provide parents with sufficient support and adequate information to conduct this literacy programme with their children, parents and the researcher participated in fortnightly coaching sessions. These sessions were conducted in the family's home or at the kindergarten, and occurred at a time convenient to the parent. The sessions lasted between 20 minutes to an hour depending on parents' and children's needs. The first coaching session occurred in Week 0 before the programme started and then occurred once every fortnight thereafter.

During coaching sessions, the researcher would go through the contents of the programme for each new week using a pre-prepared instructional sheet. This provided the researcher with a script to consistently discuss the programme to parents and to model example activities and ways to incorporate activities into different contexts. These coaching sessions provided the opportunity to clearly communicate the research and background



behind each focus to parents. It also allowed the parent to ask the researcher specific questions and discuss the child's development and any other aspects from previous weeks.

The parent and researcher also participated in follow up phone calls during the week between coaching sessions. These were to check in on progress and answer any queries from parents. Parents were also encouraged to contact the researcher anytime throughout the week if they had any questions. As parents were not trained in implementing literacy programmes, the coaching sessions, follow up phone calls and the offer of contact throughout the programme was designed to provide parents with as much support and guidance as they required.

To summarise this chapter: the study included four child-parent dyads and used qualitative and quantitative data collection methods. The early literacy programme was divided into two portions, first focusing on developing children's phonological awareness skills and second on growing their vocabulary knowledge. Parents implemented the 12-week early literacy programme and participated in fortnightly coaching sessions, follow-up phone calls and a semi-structured feedback interview after the completion of the programme with the researcher. Children participated in the early literacy programme with their parent and completed three assessment periods pre-, mid- and post- programme, as well as, fortnightly probes.

## **CHAPTER 4**

### **RESULTS**

This study aims to address two research questions using a single case study design. These research questions address whether parents are able to implement a home-based early literacy programme and if it is effective by facilitating development in children's emergent literacy skills. The single case-study approach allowed for a more in-depth look at individual participants development, family implementation and the influences on children's learning. Results for this study are presented below in four separate case studies, followed by a cross-case analysis.

#### **Daniel**

Daniel's mother, Casey, reported that he really enjoyed the activities in the programme and would often initiate games, especially I Spy. Casey noted that participating in the programme had reminded her to do literacy-based activities with Daniel. She had done these kinds of activities with her two older children, but as life had become busier, she felt she had been lacking in supporting these skills development with Daniel. She also found the programme motivating, and it provided her with opportunities for more time dedicated to her youngest son.

Casey tended to implement the programme in the car while driving. She utilised activities individually with Daniel and with his siblings and family. Casey went back to work as a new entrant teacher at the beginning of the vocabulary portion (Week 9). She found this did not really affect her implementation of the programme and she was still able to find teachable moments. She did, however, struggle with the research side of the programme, and sometimes found it difficult to find time to complete the reliability checklists or remember to

record sessions. According to the reliability checklist, Casey implemented the programme for an average of 15 to 20 minutes a day, five days a week, which amounted to between 75 and 100 minutes a week. Due to unexpected family circumstances, there were two weeks (one in the phonological awareness section and one in the vocabulary section) where they only completed four sessions a week.

### *Phonological Awareness*

Daniel demonstrated steady gains over the course of the programme. The CELF-P2 was used as a descriptive measure to understand children's emergent literacy skills at the beginning of the programme. Table 5 displays Daniel's raw and scaled scores on the CELF-P2, as well as, his age equivalents on these tasks. Table 6 presents his Core Language Score and Expressive Language Score. Daniel had phonological skills above his chronological age; however, his expressive vocabulary score was much lower suggesting this is an area that would benefit from additional support. His core language score placed him in the 82<sup>nd</sup> percentile for his age and his expressive language score put him in the 84<sup>th</sup> percentile.

Table 5  
*Daniel's Scores on the CELF-P2*

	Raw score	Scaled score	Age equivalent
RS	22	13	5
SS	18	13	5.9
WS	21	15	6.9
EV	15	9	3.11

*Note.* RS=Recalling sentences, SS=Sentence structure, WS=Word Structure, EV =Expressive vocabulary

Table 6

*Daniel's Core Language Score and Expressive Language Score*

	Sum of scaled scores	Standardised score
CLS	37	114
ELS	38	115

*Note.* CLS=Core language score, ELS=Expressive language score

Table 7 presents Daniel's raw and standardised results on the phonological awareness composite for the CTOPP2 and the computerised phonological awareness tasks. During the baseline assessments, Daniel demonstrated developing phonological skills in initial phoneme identification and phoneme blending. He was also able to segment four words. Daniel exhibited minimal improvement on the initial phoneme identity task, increasing from a score from six out of 10 in the baseline assessment to seven in both the midpoint and post-test assessments. However, in the CTOPP2 sound matching task which involved phoneme identification, Daniel demonstrated gains. In the baseline assessment, he scored a raw score of five out of 26, this increased to a score of 14 in the post-test, which was an increase in age equivalence from four years, six months to five years nine, months.

In the phoneme blending task, Daniel scored eight out of 15 at the baseline and midpoint assessments. His score increased to 11 at post-test assessment. In the segmentation task, Daniel scored four out of 12 in the baseline and midpoint assessments, and eight at post-test assessment. In the CTOPP2 blending words task, Daniel scored two out of 33 at baseline assessment, with an increase to 7 at mid-point, and 12 at post-test assessment. These results, along with Daniel's phoneme identification results, suggest that Daniel required more practise of these skills over the vocabulary programme before becoming proficient in them.

Table 7  
Daniel's Assessment Results

	CTOPP2											
	EL		B		SM		IPID		BL		SG	
	raw	SS	raw	SS	raw	SS	raw	%	raw	%	raw	%
Baseline	9	13	2	8	5	13	6	60	8	53%	4	33%
Midpoint	14	14	7	9	6	11	7	70%	8	53%	4	33%
Post-test	20	16	12	12	14	13	7	70%	11	73%	8	67%

*Note.* EL=Elision, B=Blending words, SM=Sound matching, IPID=Initial Phoneme Identification, BL=Phoneme Blending, SG=Phoneme segmentation

Table 8 displays Daniel's scores across the four phonological awareness probes. These were conducted every two weeks during the phonological awareness programme, starting in Week 3 after initial and final phoneme identification was taught. It is evident that Daniel quickly mastered initial phoneme identification, scoring five out of five on all four probes. He also performed consistently on the final phoneme task, scoring between four and five in all probes. Daniel had some difficulty grasping rhyme patterns and often focused on initial phonemes instead of the final phonemes, selecting words that started with the same phonemes instead of words which ended with the same phonemes. Once rhyme was taught, he scored three out of five on the remaining probes. Daniel demonstrated an unusual pattern in his blending and segmenting skills, demonstrating knowledge of these skills in Probe 2 before they were taught. It would be expected that he would start to show improvements in these skills during Probe 3, after these skills were taught in the programme. Daniel's segmenting shows a gradual progression with the ability to segment more words in each probe. His score decreased from five out of five in Probe 2 to three out of five in Probe 3 and

then increased again to five out of five in Probe 4. As blending was not taught until after Probe 2 it was interesting to see such a high score during that probe. This high score could have been because of the words used, randomly guessing the correct answer or transference of skills from phoneme identification, rhyme, or alliteration.

Table 8  
*Daniel's Phonological Awareness Probe Results*

	IPID	FPID	Rhyme	Blending	Segmentation	TOTAL
Probe 1	5	4	0	1	1	11
Probe 2	5	5	3	5	2	20
Probe 3	5	4	3	3	3	18
Probe 4	5	4	3	5	4	21

*Note.* IPID=Initial phoneme identification, FPID=Final phoneme identification

In the elision task, Daniel made steady gains and these results are displayed in Table 7. At baseline assessment, Daniel had a raw score of nine out of 34, which increased to 14 at midpoint assessment, and to 20 at post-test assessment. This correlated to growth in his age equivalent from five years, six months at baseline to seven years, three months at post-test. These results suggest that there was a transference of skills from the foundational skills learnt to new phoneme deletion and phoneme manipulation skills.

Casey reported that Daniel really enjoyed the phonological awareness programme, and she was able to see his skills develop in phoneme identification over the two weeks. During Week 3 and Week 4 the family went on an overseas holiday. Casey reported that the activities were very useful during plane rides and calmer moments such as shared meals or at the beach, as the activities didn't need any material resources and could be manipulated to fit different settings. Once they had returned home, Daniel found a nursery rhyme CD and liked

to listen to it on repeat, supplying the rhyming words. Casey also noticed a shift in his development towards the end of the week where he could suddenly supply lists of words that rhymed with a given word. Casey stated that Daniel was not very interested in blending and segmenting during Week 5 and Week 6 and would instead steer activities back to phoneme I Spy and other games he felt confident in. This was interesting as Daniel showed improvement in his blending and segmenting. Casey did note that Daniel often does not see the benefit in repeating things he already knows, such as what he did during a day. She hypothesises this might have been the case with blending and segmenting. He knew he could do it, so it did not want to do it for someone else.

The researcher noted with Daniel, specifically during the third probe on, he started to segment out every word given to him during assessments in order to complete the task. When this was mentioned to Casey, she noted that Daniel did not do this at home with her.

### *Vocabulary*

It can be difficult to detect changes in children's vocabulary on the BPVS3 over such a short period of time. It is recommended to have a gap of three months or more between measurements (Dunn & Dunn, 2009). At baseline, Daniel had a standardised score of 103 on the BPVS. Mid-point assessment identified a slight increase to 110, this was maintained post-intervention where Daniel scored 111. This indicated that over the course of the phonological awareness portion of the programme, Daniel demonstrated an increased ability to define words and to use words within a sentence. However, Daniel did not demonstrate any increase over the vocabulary portion of the programme. As the gains occurred during the phonological portion of the programme it is difficult to determine if these gains were programme or development related.

Table 9 displays Daniel's results on the four vocabulary probes. Daniel performed consistently on the receptive vocabulary tasks. He was able to identify four or five of the five elaborated vocabulary words, in all four of the probes. Of the unelaborated words assessed, Daniel identified on average three out of five words. Daniel became increasingly better at providing definitions or synonyms for the elaborated words in the expressive vocabulary task. He often linked the words to real world experiences which were, most likely, examples his mother had used to help him understand the focus words. At baseline Daniel correctly identified two out of five elaborated words on the expressive vocabulary probe. His score increased to four elaborated words in Probe 2 and then three in Probe 3. In total Daniel was able to correctly respond to 30 of the 40 elaborated words assessed. From the baseline probe, Daniel demonstrated knowledge of 23 new, elaborated, words from the vocabulary programme over both the receptive and expressive tasks on the vocabulary probes.

Table 9  
*Daniel's Vocabulary Probe Results*

	Receptive Vocabulary			Expressive Vocabulary		
	Elaborated	Unelaborated	TOTAL	Elaborated	Unelaborated	TOTAL
Baseline	5	4	9	2	0	2
Probe 1	5	2	7	2	2	4
Probe 2	5	3	8	4	1	5
Probe 3	4	3	7	3	1	4
TOTAL	19	12		11	4	

Casey reported that Daniel enjoyed the vocabulary programme and loved using the new words provided. Casey also found herself diversifying her own vocabulary. She noted that she had probably fallen into a monotonous pattern of using the same words and



appreciated the opportunity to change her routine. Casey noted this rubbed off on Daniel and he started using words in novel ways. She also found it helpful to go through words that Daniel may not know in stories and discuss different definitions or contexts words could be used in. Casey continued with the activities from the phonological awareness programme into the vocabulary programme. She used phoneme identification, blending, rhyming and segmentation during shared reading and while discussing new vocabulary words. Casey reported Daniel showed great improvement over Week 3 and Week 4 through his comparing sizes and shapes of his toys. Casey noted that he also really enjoyed the Week 5 focus on emotions and quickly grasped the focus words and definitions. She extended into the extra suggested Tier 2 words for that week. As a family, they started doing “Emotion Check-In” at the dinner table. Casey reported that Daniel loved contributing feedback on his day and his older siblings provided great modelling examples.

#### *Parent Reported Outcomes*

Overall, Casey was very grateful for being given the opportunity to be a part of this programme. She found it reminded her to do more literacy activities with Daniel and to diversify her everyday language. Before participating in the programme Daniel had always loved books, being read to and often independently flipped through the pages looking at the pictures. Since participating in the programme, Casey has noticed Daniel was engaging a lot more in books and especially in audiobooks. His attention and ability to sit and concentrate had also increased. Casey was really happy with Daniel’s segmenting and blending results in the quantitative measures as she was unsure if he had made any gains in this skill or not, due to Daniel’s unwillingness to demonstrate it at home. She also reported that she has seen an increase in Daniel’s interest in identifying the letters in his name, writing some letters and his

use of the vocabulary taught in the programme. Casey further reports an improvement in Daniels pronunciation and articulation. He was stammering less than he did prior to participating in the programme.

### **James**

James' mother, Tania, reported difficulty from the beginning of the programme. She had a lot of problems with engaging James in activities, and when he would, it would be minimal. She was also not seeing a lot of progress in his phoneme identification skills. She found it very challenging, and his lack of participation strongly affected her motivation to continue implementing the programme. Nevertheless, she persevered, and James started to really enjoy the programme, and slowly participated more as the weeks went on. Tania reported he was much more active in the vocabulary portion than the phonological awareness section. This could be due to the different styles of games in each programme, or the routine they had formed with the programme. Due to James' unwillingness to participate, Tania tended to merge the programme weeks and would start to incorporate the next focus once she felt James had learned the previous one.

Tania found the programme easy to use and that it fit into her daily life. She would implement the programme with James individually, as well as with his younger sister and older brother. She found that her oldest son really enjoyed the activities as well and provided good modelling examples for James. James tended to participate more during the activities when his brother was not around though as Tania found sometimes her oldest son would talk over James and take over sessions. According to the reliability checklist, Tania implemented the programme for an average of 10 to 15 minutes a day, six days a week, totalling between 60 and 90 minutes a week.

The researcher had a lot of difficulties getting James to participate in assessments. Some days he was not willing to talk at all. Other days he would mumble or whisper a couple of answers. On one or two occasions he was much chattier. Overall, James tended to do better in tasks where he did not have to verbally answer, and could instead point to respond, or complete tasks on the computer.

### *Phonological Awareness*

Table 10 displays James' raw and scaled scores on the CELF-P2, as well as, his age equivalents. Table 11 presents his Core Language Score and Expressive Language Score. James' results on the CELF-P2 are much lower than his age would expect. His Core Language Score places him in the 14<sup>th</sup> percentile for his age and his Expressive Language Score puts him in the 3<sup>rd</sup> percentile. These results indicate that James' language skills are at a high need for intervention or support. He would be classified as at-risk for his early literacy skills.

Table 10  
*James' Scores on the CELF-P2*

	Raw score	Scaled score	Age equivalent
RS	0	0	-
SS	10	7	3.7
WS	8	7	3.4
EV	13	8	3.8

*Note.* RS=Recalling sentences, SS=Sentence structure, WS=Word Structure, EV =Expressive vocabulary

Table 11  
*James' Core Language Score and Expressive Language Score*

	Sum of scaled scores	Standardised score
CLS	22	89
ELS	15	72

*Note.* CLS=Core language score, ELS=Expressive language score

James' raw and standardised results on the phonological awareness composite for the CTOPP2 and the computerised phonological awareness tasks are presented in Table 12. These results demonstrate that James started with very little phonological awareness skills. He was able to demonstrate some skills in the CTOPP2 sound matching task during the baseline assessment, but these declined across the other two assessment points to five (mid-point) and then two (post-assessment). However, in the initial phoneme identification task, he demonstrated an increase from three (baseline), to six (midpoint), although this decreased to two at post-assessment. It is most likely that James was able to make gains in this task as he performed better on the computerised task over the verbal CTOPP2 task. However, his results on the initial phoneme identification task suggest that these gains may not have been maintained between the midpoint assessment and the post-test.

In the CTOPP2 blending words task where James had to verbally answer, he scored a raw score of two at baseline assessment, but during subsequent testing periods scored zero, as he was non-responsive. In the phoneme blending task, where he was only required to touch the screen, he initially scored three, then improved to four at the midpoint and then doubled his correct answers in the post-test to eight. These results suggest James was able to make gains in his phoneme blending skills, which continued to develop between the midpoint and post-test assessments. As with the phoneme identification task though, he was only able to

demonstrate gains in non-verbal tasks. James was unable to demonstrate any development in the segmentation task as he did not answer any questions during the three assessment periods.

Table 12  
*James' Assessment Results*

	CTOPP2											
	EL		B		SM		IPID		BL		SG	
	raw	SS	raw	SS	raw	SS	raw	%	raw	%	raw	%
Baseline	2	10	2	8	11	13	3	30%	3	20%	0	0
Midpoint	6	11	0	6	5	10	6	60%	4	27%	0	0
Post-test	8	10	0	6	2	8	2	20%	8	54%	0	0

*Note.* EL=Elision, B=Blending words, SM=Sound matching, IPID=Initial Phoneme Identification, BL=Phoneme Blending, SG=Phoneme segmentation

James showed steady improvement in the elision task. Although not evidenced through his standardised scores, James' raw scores increased from two (baseline) to eight at post-test. As the elision task involves phonological skills not taught in the programme, deletion and manipulation, these results suggest that James was able to transfer skills taught throughout the programme in order to complete this task. This is especially interesting as it was a verbal task and is the task that he demonstrated some of his biggest gains in.

Table 13 displays James' results on the phonological awareness probes. Overall, James was disinclined to answer verbally during the probes. He was able to correctly answer one or two of the initial phonemes, however, he tended to repeat the same sound for all questions, so it may have been a guess. His best performance was seen on the rhyme tasks, for which the researcher created picture cards, to aid in his responses. He was able to correctly identify between two and four rhyme questions in each probe. He was also able to

blend one word, however, as this was during Probe 1, before blending had been taught this answer was most likely a correct guess.

Table 13  
*James' Phonological Awareness Probe Results*

	IPID	FPID	Rhyme	Blending	Segmentation	TOTAL
Probe 1	2	0	2	1	0	5
Probe 2	1	0	3	0	0	4
Probe 3	1	0	2	0	0	3
Probe 4	1	0	4	0	0	5

*Note.* IPID=Initial phoneme identification, FPID=Final phoneme identification

At the end of the first week of the phonological awareness portion, during the follow-up phone call, Tania reported that James was not very interested, and she was struggling to get him to participate in activities. The researcher recommended Tania stay focused on initial phoneme identification and not move forward with Week 2 until she felt James was ready, then slowly incorporate final phonemes into activities. After some persistence, James started to really enjoy the activities. He especially loved phoneme I Spy and would often initiate phoneme identification activities throughout the day. Tania found it a bit difficult to move James on from phoneme identification when she wanted to incorporate rhyme and alliteration. They would consequently often start sessions with I Spy before moving on to other activities. Tania decided to combine Week 5 and Week 6, blending and segmentation, together, however, James was not very interested in doing either of these topics. Tania stated he much preferred to do activities he was confident in and was less likely to participate in new or unknown activities and skills. She decided to continue the phonological awareness activities through the two-week break between programmes.

## *Vocabulary*

At baseline, James had a standardised score of 103 on the BPVS. Mid-point assessment identified a slight decrease to 93. At post-intervention, James demonstrated an increase with a standardised score of 107. This indicated that over the course of the phonological awareness portion of the programme, James demonstrated a decrease in his ability to define words and to use words within a sentence. However, James did, however, demonstrate an increase over the vocabulary portion of the programme. Initially, his score placed him slightly above his true age, with an age equivalent of four years, six months, which put him in the 58<sup>th</sup> percentile. At the post-test, his score increased his age equivalent to four years, 10 months, and in the 68<sup>th</sup> percentile. It is difficult to determine whether this increase of four months was directly related to his participation in the programme or due to developmental changes as there were approximately three months between the two testing points. However, as the increase was over the vocabulary portion of the programme, not the phonological portion, this suggests it may have had a positive effect on this receptive vocabulary skills.

James performed consistently on the receptive vocabulary probe questions as he was able to point to answers instead of answering verbally. He was able to correctly identify three to four of the elaborated words once they had been taught in the programme, and two to four of the unelaborated Tier 2 words as well. James, for the most part, did not answer the expressive vocabulary questions, bar Probe 1 where he was unusually chatty. During this session, he was able to provide definitions or synonyms for two of the elaborated words, and two of the unelaborated words. It is difficult to put too much emphasis on this probe, but it demonstrates that he was able to learn and use some of the target words from the programme.

Overall, James was able to correctly respond to 15 of 40 elaborated words assessed. From the baseline probe, James demonstrated knowledge of 13 new, elaborated, words from the vocabulary programme over both the receptive and expressive tasks on the vocabulary probes.

Table 14  
*James' Vocabulary Probe Results*

	Receptive Vocabulary			Expressive Vocabulary		
	Elaborated	Unelaborated	TOTAL	Elaborated	Unelaborated	TOTAL
Baseline	2	3	5	0	0	0
Probe 1	4	2	6	2	2	4
Probe 2	3	4	7	0	0	0
Probe 3	4	2	6	0	1	1
TOTAL	13	11		2	3	

Due to family illness, Tania asked for an extra week before starting the vocabulary portion of the programme. This moved James' schedule one week behind the other participants. Tania reported that James enjoyed the vocabulary sessions. He participated a lot more and loved learning new words. Throughout the vocabulary programme, she would incorporate and start sessions with some of the activities from the phonological awareness programme, especially phoneme I Spy.

The kindergarten teachers mentioned they had seen an increase in James' interest and confidence in reading and writing independently, especially his name. James especially loved Week 5 and Week 6 which focused on emotions and thought processes. He found a book they had at home about emotions and would look through it often by himself. James would also point out people in books and on TV identifying their emotions. Tania also noted that James'



older brother would use a lot of the target vocabulary with James and would do activities from the programme with him when they thought she was not watching.

### *Parent Reported Outcomes*

Overall Tania was really happy with James' progress over the programme. She had been a little concerned with how little he talked to new people, and how long it took him to warm up to people, such as the kindergarten teachers. Since participating in the programme Tania has noticed James was becoming a lot more confident, talking a lot more at home and was even talking to adults who he did not know. In the past, he would usually have hidden behind her and not talked at all.

James was also a lot more interested in books. Prior to the programme he had no interest in reading or being read to. Now he was picking out books, asking to be read to, creating his own stories to the pictures, identifying the letters in his name and even starting to sound out vowel sounds. She has also noticed an increase in his attention and engagement. Tania reported prior to participating in the programme James was unable to focus on one task and would fidget and not sit still. Now he is able to sit and focus on a story or activity until its completion. James was also more open about his emotions and how he is feeling in different situations. Tania thinks this is because of the focus on emotions. He is now able to recognise and label his own feelings.

Tania reported that she had seen a huge growth in his skills. James was able to correctly identify initial and end phonemes in I Spy; pick out rhyming words and provide new rhyming words in songs and nursery rhymes and blend words his mother segments out while helping her oldest son read. These skills, however, were evident during the vocabulary portion, not the phonological awareness portion.

Tania noticed a confidence boost in James' younger sister and older brother. She reported his sister was talking more and was less shy around other people. James' brother had been struggling with reading at school. Since Tania started using the programme three months prior, he has gone up two reading levels. Tania herself noted that she was not very confident in her own literacy skills and did not really know how to improve her children's literacy and language skills. She found the programme supplied her with easy and straightforward activities she could do with the children which taught her what to focus on and why. She really appreciated the coaching sessions as these provided opportunities for her to have the skills modelled for her by the researcher and she was able to ask questions and seek clarification. She recognised that she was using a lot of Tier 1 words when talking to the children and found herself trying to think of different ways to say things or ways to incorporate new words. She plans to continue with the activities in the future to help prepare James better for starting school and reading. She also plans to redo the programme with her daughter in a couple of years when she turns four.

### **Sarah and Aarav**

As Sarah and Aarav are twins and participated in the programme almost identically, their individual results will be presented separately but their overall parent feedback will be presented together. Their mother, Sushma, tended to implement the programme during their walk or bike ride to kindergarten (10 to 15 minutes away) or in car rides to her work. She would aim to have one long session at the beginning of the week where she would sit down with both children and go through the programme for that week and have shorter sessions during teachable moments throughout the week.

As English was not Sushma's first language, she found it helpful to research and write out a list of word examples for herself each week. This included lists of words that started with each of the target phonemes and words that rhymed or alliterated. Sushma was very motivated to participate and implement this literacy programme. She was worried that as English was not her first language, her children's English and literacy skills would be disadvantaged. According to the checklist booklet Sushma completed for reliability, it appears they did the programme for 10 to 15 minutes, seven days a week. This totalled between 70 and 105 minutes a week.

#### *Sarah's Phonological Awareness*

Sarah showed steady development over the course of the intervention programme, especially in her phonological skills. Sarah's raw and scaled scores on the CELF-P2 are presented in Table 15, as well as her age equivalents on these tasks. Table 16 presents her Core Language Score and Expressive Language Score. Sarah has phonological and vocabulary skills slightly above her chronological age. Her core language score places her in the 70th percentile for her age and her expressive language score puts her in the 73rd percentile.

Table 15  
*Sarah's Scores on the CELF-P2*

	Raw score	Scaled score	Age equivalent
RS	20	12	4.8
SS	16	11	4.9
WS	16	11	4.11
EV	22	12	4.10

*Note.* RS=Recalling sentences, SS=Sentence structure, WS=Word Structure, EV =Expressive vocabulary

*Table 16*  
*Sarah's Core Language Score and Expressive Language Score*

	Sum of scaled scores	Standardised score
CLS	34	108
ELS	35	109

*Note.* CLS=Core language score, ELS=Expressive language score

Table 17 displays Sarah's raw and standardised scores on the phonological awareness composite for the CTOPP2 and the computerised phonological awareness tasks. At baseline assessment, Sarah demonstrated she had a rudimentary knowledge of some phonological skills. She was able to identify some initial phonemes, blend three words on the phoneme blending measure, and seven words on the CTOPP2 blending words task. Sarah made gains in her phoneme identification skills over the course of the entire programme. On the initial phoneme identification measure, her score increased from four out of 10 at baseline to eight at post-test assessment. This skill development was also observed (although not evident through the standardised score) by her raw scores on the CTOPP2 sound matching task which increased from six at baseline to 11 at post-test.

Sarah's blending and segmenting skills also demonstrated steady improvement from the baseline to the post-test assessment. In the phoneme blending task her score increased to 10 (midpoint) and 13 (post-test). In the blending words task, she made large gains, improving her raw score from seven at baseline to 16 at both the midpoint and post-test assessment.

Sarah was initially was unable to segment words at the baseline assessment. However, during the midpoint assessment, she segmented five out of 12 words, which increased to

seven words at post-test. Sarah's blending and segmenting results suggest she required more practise of these skills over the vocabulary programme to become proficient.

Table 17  
*Sarah's Assessment Results*

	CTOPP2											
	EL		B		SM		IPID		BL		SG	
	raw	SS	raw	SS	raw	SS	raw	%	raw	%	raw	%
Baseline	7	12	7	9	6	11	4	40%	3	20%	0	0
Midpoint	13	14	16	13	6	11	9	90%	10	66%	5	42%
Post-test	15	12	16	12	11	11	8	80%	13	87%	7	58%

*Note.* EL=Elision, B=Blending words, SM=Sound matching, IPID=Initial Phoneme Identification, BL=Phoneme Blending, SG=Phoneme segmentation.

A similar pattern of phonological skill development is observed through Sarah's results on the phonological awareness probes, displayed in Table 18. The results from the four probes show that Sarah quickly mastered initial phoneme identification - scoring five out of five on the last three probes. She was also able to correctly identify the final phoneme and words which did not rhyme with reasonable accuracy after Probe 1.

Blending and segmenting were taught in Week 5 and Week 6, so low scores on the first two probes were to be expected. Sarah's results show an increase once these skills were focused on. She was able to blend four out of five words on the last two probes and segmented three words on Probe 3 and five out of five words in Probe 4.

Table 18  
*Sarah's Phonological Awareness Probe Results*

	IPID	FPID	Rhyme	Blending	Segmentation	TOTAL
Probe 1	4	2	3	0	0	9
Probe 2	5	4	5	2	0	16
Probe 3	5	5	4	4	3	21
Probe 4	5	3	5	4	5	22

*Note.* IPID=Initial phoneme identification, FPID=Final phoneme identification

Her overall phonological skill growth is demonstrated through her gains in probe totals, increasing from nine out of 25 in Probe 1 to 21 in Probe 3 at the conclusion of the phonological awareness programme. These skills were maintained and showed a slight increase during the post-test probe, six weeks after the third probe, with a total score of 22.

As seen in Table 16, during the baseline assessment, Sarah scored seven out of 34 on the elision task, which increased to 13 at mid-point and 15 at post-test assessment. This suggests that there was some transference of the foundational phonological skills taught in the programme to manipulation and deletion of phonemes.

Sushma reported that Sarah really enjoyed participating in the programme. She would often initiate activities with her brother and their parents, especially initial phoneme activities. Sarah was not very interested in the blending and segmenting activities and tried to turn activities towards initial phoneme and rhyme.

One phenomenon the researcher noticed during assessment periods with Sarah, specifically in third and fourth probes and the midpoint and post-test assessments, was her segmentation of words no matter the task. She began to segment out every word given to her

in order to answer phoneme identification and rhyme as well as the blending and segmenting activities.

### *Sarah's Vocabulary*

At baseline, Sarah had a standardised score of 118 on the BPVS. Mid-point assessment identified a slight decrease to 113. At post-intervention, Sarah scored 109. This reduction was most likely not due to an actual decrease in her vocabulary knowledge and instead likely due to the relatively short time period of six weeks between assessment periods. Sarah's initial score on the BPVS put her vocabulary in the 89<sup>th</sup> percentile for her age and her age equivalent at five years, four months which was 11 months older than her actual age at the time.

Sarah's results on the vocabulary probe are presented in Table 19. Sarah displayed varied knowledge on receptive vocabulary tasks. She was able to identify three to five out of five of the elaborated vocabulary words in all four of the probes. Sarah was also able to correctly identify three to four of the unelaborated Tier 2 words. Sarah made increasing gains in her ability to provide definitions for elaborated words on the expressive probe, improving from one out of five in Probe 1 to four out of five in Probe 3. Overall, Sarah was able to correctly respond to 26 out of 40 elaborated words assessed, excluding the baseline probe. From the baseline, Sarah demonstrated knowledge of 19 new, elaborated, words from the vocabulary programme over both the receptive and expressive tasks on the vocabulary probes.

At the beginning of the vocabulary portion of the programme, Sushma reported Sarah was really enjoying the new style of games and was noticeably using the new vocabulary words. Sushma noted that they would usually start vocabulary sessions with activities from

the phonological awareness programme such as phoneme I Spy or a memory game. This continued throughout the entire vocabulary programme. During Week 3 and Week 4, Sushma started working slightly longer hours, so she felt that she was unable to implement the programme to a standard she was satisfied with and therefore asked for an extra week to complete the programme.

Table 19  
*Sarah's Vocabulary Probe Results*

	Receptive Vocabulary			Expressive Vocabulary		
	Elaborated	Unelaborated	TOTAL	Elaborated	Unelaborated	TOTAL
Baseline	4	4	8	3	0	3
Probe 1	5	3	8	1	2	3
Probe 2	3	3	6	3	2	5
Probe 3	3	4	7	4	0	4
TOTAL	15	14		11	4	

#### *Aarav's Phonological Awareness*

Table 20 displays Aarav's raw and scaled scores on the CELF-P2, as well as, his age equivalents on these tasks. Table 21 presents his Core Language Score and Expressive Language Score. These results demonstrate Aarav had phonological and vocabulary skills above his chronological age, with his expressive vocabulary being his biggest strength. This is supported by his core language score which places him in the 86<sup>th</sup> percentile for his age and his expressive language score puts him in the 91<sup>st</sup> percentile.



Table 20  
*Aarav's Results on the CELF P2*

	Raw score	Scaled score	Age equivalent
RS	22	13	5.4
SS	16	11	4.9
WS	18	13	5
EV	28	14	5.8

*Note.* RS=Recalling sentences, SS=Sentence structure, WS=Word Structure, EV =Expressive vocabulary

Table 21  
*Aarav's Core Language Score and Expressive Language Score*

	Sum of scaled scores	Standardised score
CLS	38	116
ELS	40	120

*Note.* CLS=Core language score, ELS=Expressive language score

Table 22 presents Aarav's results on the phonological awareness composite for the CTOPP2 and the computerised phonological awareness tasks. As shown through his baseline results, Aarav had some initial awareness of a few phonological skills. He sometimes had difficulty switching to identifying the final phoneme and continued to identify the initial phoneme instead. On both the CTOPP2 sound matching and initial phoneme identity tasks he scored 15 out of 26 and six out of 10 respectively. Aarav's scores on the sound matching task decreased over the latter two assessment periods, with raw scores of nine and eight at the midpoint and post-test respectively. However, the standardised scores show an initial decrease between the baseline and midpoint from 13 to seven, and then an increase from seven to 10 between the midpoint and post-test. On the initial phoneme identification task

Aarav increased from six to a score of nine in the midpoint, Aarav's score then decreased to a score of four in the post-test. This decrease could have been due to external circumstances and is further explored in the discussion in Chapter 5.

Table 22  
*Aarav's Assessment Results*

	CTOPP2											
							IPID		BL		SG	
	EL		B		SM		raw	%	raw	%	raw	%
	raw	SS	raw	SS	raw	SS						
Baseline	9	12	9	10	15	13	6	60	5	33%	0	0
Midpoint	9	12	15	13	9	7	9	90%	9	60%	3	20%
Post-test	9	11	21	15	8	10	4	40%	14	93%	6	50%

*Note.* EL=Elision, B=Blending words, SM=Sound Matching, IPID=Initial Phoneme Identification, BL=Phoneme Blending, SG=Phoneme segmentation

Aarav's blending and segmenting demonstrate a much more expected pattern of development, with gains made in both skills. He was able to blend nine out of 33 words on the CTOPP2 blending words task during the baseline assessment. This increased to 15 words in the midpoint and 21 words during the post-test. A score of 21 increased his age equivalent from four years, nine months during the baseline assessment to seven years, three months and was the skill in which he made the most gains. In the blending phonemes task, Aarav was able to initially blend five out of 15 words, during the midpoint, this increased to nine words and then 14 in the post-test. Aarav was initially unable to segment any words during the baseline assessment, however, in the midpoint assessment, he was able to segment three out of 12 words, which increased to six words at post-test.

Table 23  
*Aarav's Phonological Awareness Probe Results*

	IPID	FPID	Rhyme	Blending	Segmentation	TOTAL
Probe 1	5	0	0	1	0	6
Probe 2	5	4	3	1	2	15
Probe 3	5	3	1	3	2	14
Probe 4	5	3	3	5	5	21

*Note.* IPID=Initial phoneme identification, FPID=Final phoneme identification

Table 23 displays Aarav's scores across the four phonological awareness probes. Aarav quickly mastered initial phoneme identification, scoring five out of five on all four probes. As noted above Aarav struggled when it came to moving from initial phoneme to the final phoneme identification. This is demonstrated through his lower scores on the final phoneme identification tasks. Aarav also tended to struggle with the rhyme task. He was often unable to identify the word that did not rhyme from three words/picture cards.

Aarav's blending and segmenting on the probes showed a similar pattern of skill development as the other assessments. He was able to blend one word in each of the first two probes and segment two words on the second probe. After these skills were taught in Week 5 and Week 6, he exhibited steady gains, initially blending three words and segmenting two on the third probe. However, after some more practice in the six weeks between Probe 3 and Probe 4, Aarav demonstrated he was able to blend, and segment five out of five words given to him in each task. Aarav's phonological awareness skill development is also demonstrated through the increases in his correct totals from Probe 1 with a total score of six out of 25 to 21 out of 25 in Probe 4.

Aarav showed no change in the elision task. He scored nine out of 34 at all three assessment points gave him an age equivalent of five years, six months, which was over a year older than his actual age at the time, four years, five months. This suggests that he had some knowledge of phoneme deletion and manipulation, however, growth was not apparent during the programme.

Sushma reported that Aarav really loved participating in the programme. He would often initiate activities with his sister and their parents. He also really enjoyed coming up with rhyming words for the things around him. Aarav was less interested in alliteration and during this week tried to turn activities towards initial phoneme and rhyme. As with his sister, Aarav did not really want to participate in blending or segmenting activities and would often refuse to do some of the games, instead bringing sessions back to their favourite games, such as phoneme I Spy, which he had mastered by this time.

#### *Aarav's Vocabulary*

Aarav demonstrated strong vocabulary knowledge at the beginning of the programme, at baseline, he had a standardised score of 123 on the BPVS. Mid-point and post-test assessments identified a slight decrease which a standardised score of 119 measured at both points. This decrease in scores over the course of the programme was most likely not due to an actual decrease in Aarav's vocabulary knowledge and instead likely due to the relatively short time period of six weeks between assessment periods. Aarav's initial score placed his receptive vocabulary knowledge well above his true age, with an age equivalent of five years, eight months and placed him in the 94<sup>th</sup> percentile for his age. At the post-test, his score increased his age equivalent to five years, 11 months.

Table 24  
*Aarav's Vocabulary Probe Results*

	Receptive Vocabulary			Expressive Vocabulary		
	Elaborated	Unelaborated	TOTAL	Elaborated	Unelaborated	TOTAL
Baseline	3	5	8	3	0	3
Probe 1	5	5	10	1	2	3
Probe 2	4	3	7	1	2	3
Probe 3	4	3	7	3	1	4
TOTAL	16	16		8	5	

Aarav's results on the vocabulary probes are displayed above in Table 24. He was able to consistently identify four to five of the elaborated words and three to five of the unelaborated Tier 2 words in the receptive vocabulary task. Aarav experienced more difficulty with the expressive vocabulary tasks. He found it quite hard to give definitions or synonyms for both elaborated and unelaborated words during assessments. His best result was observed in Probe 3, where he was able to give definitions for three out of five elaborated words and one unelaborated Tier 2 word. Overall, Aarav was able to correctly respond to 24 out of 40 elaborated words assessed. From the baseline, Aarav demonstrated knowledge of 18 new, elaborated, words from the vocabulary programme over both the receptive and expressive tasks on the vocabulary probes.

Sushma reported that Aarav really enjoyed the vocabulary programme. During the second coaching session for this programme, Aarav was able to demonstrate to the researcher a list of definitions not only for the focus words but also for a significant portion of the additional Tier 2 words when prompted by his mother. It may have been the environment

change from home to the kindergarten that negatively affected Aarav's performances on the vocabulary probes in the kindergarten.

Sushma reported that Aarav especially loved the Week 5 focus on emotions. She noticed a large difference in the words and ways he was describing his emotions, both at the time and retrospectively on past experiences. Aarav did, however, struggle to provide definitions for these new words when prompted by his mother, although he was able to use them in the correct context. She also noted that after Aarav's increased use of words to do with emotions Sarah began copying and using similar language.

#### *Parent Reported Outcomes*

Before being apart of the programme the children enjoyed books and their mother read to them every night before bed. Since participating in the programme both children have started reading more independently. This started with using the pictures to create a story but has progressed and both children are now able to sound out two, three and some four-phoneme words and read them. When reading at bedtime their mother leaves spaces for them to read short words and will often have the children identify phonemes, supply rhyming or alliterating words or blend and segment words in books. This was one of the biggest outcomes Sushma personally took away from participating in the programme. Prior to participating in this research and literacy programme, she assumed reading to the children frequently was an adequate technique to encourage their literacy development. She did not know about phonemes, blending or segmentation. Sushma now actively incorporates them anywhere she can, especially in shared book reading which enhances this practice. She also now ensures both children know what new words in stories mean and gives them definitions and examples. Sushma also noticed that both children are asking her to read to them less and

instead they are choosing to try and read stories by themselves. She plans to continue with the activities from both segments of the programme.

### **Cross-Case Analysis**

Although each of the participants demonstrated their own individual strengths and weaknesses within this study, there were some common patterns found across children.

#### *Early Literacy Skills*

All the children, to different degrees, improved a range of their phonological skills. In particular, the children made progress in phoneme identification skills, rhyme, blending and segmentation. This was observed in both the quantitative measures and in the qualitative reports from parents and kindergarten teachers. Interestingly, all parents reported that children did not want to participate in the blending and segmenting sections of the phonological awareness programme. Nevertheless, all children made gains in these skills. Sarah and Daniel developed their segmentation skills to a level at which they would segment phonemes of every word to complete the other phonological tasks. This foundational skill also transferred to deletion and manipulation of phonemes for James, Daniel and Sarah who demonstrated improvement on the CTOPP2 Elision task. With the exception of James whose development was observed more at home, all the children showed progress in developing their skills across the four phonological awareness probes.

For the most part, there was little change seen in the children's vocabulary on the BPVS. There were some small increases but due to the time period between assessments, these changes could be attributed to typical developmental processes. The vocabulary probes, however, did show that the children were able to demonstrate knowledge of the target words

taught on the receptive vocabulary task. All of the parents reported that they had noticed their child independently initiating use of the target words from the programme without encouragement, especially the emotion words.

Interestingly, although not instructed to by the researcher, all of the parent's chose to continue the activities from the phonological awareness programme into the vocabulary programme. All the parents also used the phonological awareness activities and skills as ways of introducing or developing the vocabulary words. This could explain why children continued to make gains in their phonological skills between the midpoint and post-test assessments.

#### *Books and Literacy Activities*

All three parents reported changes in their children's interest and engagement in books and literacy activities. For Sarah and Aarav, this was reading more independently - sounding out words and reading two to four phoneme words. For Daniel, this was an increased interest in audiobooks and sustained attention and engagement with stories. For James it was a complete change, from having no interest in books or being read to, to wanting to look through books independently, asking to be read to, identifying letters and endeavouring to write his own name. These were observed both at home and at the kindergarten.

#### *Speech and Confidence*

James and Daniel's mothers both reported increased articulation from the beginning of the programme. Daniel was stuttering less and was more confident in his speaking. James had increased confidence both at home and at kindergarten. In situations where he would



have usually hidden behind his mother, such as a birthday party, he was instead comfortable being around and talking to new adults. Sushma reported an improvement in Sarah's pronunciation and articulation.

Overall, this study found positive outcomes with all participants. All of the children were able to increase their phonological skills and learn new vocabulary words from the programme. This unexpectedly, also had positive effects on their literacy interests, confidence and speech.

## **CHAPTER 5**

### **DISCUSSION**

The aim of this research was to investigate whether a parent-led, home-based literacy intervention programme was effective at facilitating the development of early literacy skills in four year old children. Overall, this research found positive outcomes in all children who participated in the programme. These positive outcomes extended into their parents and their siblings. This chapter will discuss the results in regard to the research questions, the spinoff effects from this study, followed by an evaluation of the literacy programme.

#### **Research Questions**

The research questions for the current study were:

- (1) Can a parent-delivered, oral-based early literacy programme, implemented in the home environment, improve the phonological awareness skills and vocabulary knowledge of four-year-old children?
- (2) Are parents able to effectively and consistently implement an early literacy programme and facilitate the development of their children's emergent literacy skills?

#### *Research Question 1*

This study found that a parent-delivered, home-based early literacy programme was able to improve the phonological awareness skills and vocabulary knowledge of four-year-old children. All four participants demonstrated improved phonological skills and increased knowledge and use of vocabulary words taught throughout the programme.

Larger improvements were observed in the skills taught in the phonological awareness portion of the programme, compared to the vocabulary portion. This could be due

to the phonological awareness programme being taught first (Fälth et al., 2017) and parents continuing to use the skills and strategies into the vocabulary programme (Gough & Tunmer, 1986; Tunmer & Hoover, 2019). Another factor may have been that phonological awareness is skill-based, while vocabulary is predominantly knowledge-based, so children found it easier to develop their phonological skills but struggled to maintain the vocabulary understanding information. It may have also been that earlier exposure to phonological skills produced superior outcomes (Fälth et al., 2017; Gorard & See, 2013). This theory is supported with research by Torgesen et al. (2001), which observed children performed better on phonological awareness tasks when they had been exposed to phonological awareness skills at a younger age (pre-school).

The children varied in the type and degree to which they demonstrated gains in phonological skills. The children also established that they were able to master phoneme identification early. This skill was maintained over time with the children consistently performing well on the phoneme identification tasks on the probes as well as the computerised initial phoneme identification task and the sound matching task from the CTOPP. Increased gains were also observed in rhyme, with all children increasing their scores on the identification of words that did not rhyme in the probes.

Increasing gains in phoneme blending and segmentation were demonstrated over the course of the phonological awareness portion of the programme. These are two particularly challenging skills which were taught in the final two weeks of the phonological awareness portion. Quantitative results demonstrate, that participants were able to develop these skills, although to a lesser extent than for phoneme and rhyme identification. Interestingly improvement was noted between the midpoint and post-test assessment, which suggests that

increased time and practice through the vocabulary portion of the programme contributed to further fostering the development of these skills. The identification of phonemes or rhyme units is easier than manipulation tasks. Children have to develop their phoneme identification and isolation skills before they are able to manipulate phonemes, so this latter pattern of development for segmenting and blending is what would typically be expected (Anthony & Francis, 2005).

The study identified growth in phoneme manipulation and deletion skills, as demonstrated in the elision task from the CTOPP2. This suggests that the children were developing skills in areas other than those taught. Known as a transfer effect of phonological skills, this has been found in other research on phonological awareness programmes by Torgesen et al. (2001), Fälth et al. (2017) and Werfel et al. (2016).

Children varied on the number of vocabulary words they demonstrated knowledge of over the course of the programme. The BPVS did not show significant growth in children's receptive vocabulary, however, children demonstrated increased knowledge of the target vocabulary words in both subsections of the vocabulary probes. Children improved in their abilities to provide definitions or synonyms for words in the expressive vocabulary tasks. This was observed in both elaborated words and unelaborated words. Research by Justice et al. (2005), Spencer et al. (2012) and Penno et al. (2002) found children were able to just under half of the words taught on a vocabulary intervention. Results from this study suggest that children were on par with the participants in these studies. However, as with Justice et al. (2005), who found small groups of participants were found to learn over half of the targeted words, this study also found some children were able to demonstrate knowledge of over half of the target vocabulary words. Parents reported an increase in the use of the target

vocabulary in all four children, this growth and use of the target vocabulary words was most likely facilitated by children's engagement within the specific vocabulary topics, such as emotions and adjectives.

To make the programme easier to use and accessible to all parents it was designed to not need any materials such as books or cards and have all activities be predominantly orally based. The results from the four participants demonstrated that an oral-based early literacy programme can advance and develop children's phonological awareness and vocabulary skills.

Interestingly, all of the parents also included elements of written text, such as shared book reading, labels, signs and posters into the programme's activities. This may have influenced children's learning and retention, especially of the vocabulary words. Research by Cohen and Johnson (2011) found that children were able to better learn novel vocabulary words with the inclusion of images or representations of that word. As phonological awareness is a verbal skill, verbal based programmes are ideal. Especially for young children, as the inclusion of words and letter representations for sounds can cause a lot of confusion. However, when developing vocabulary knowledge, some visual representation is probably more effective at helping children to learn and remember new words.

### *Research Question 2*

The second research question asked whether parents were able to effectively and consistently implement an early literacy programme and facilitate the development of their children's emergent literacy skills?

This study found that parents were able to implement the early literacy programme to a standard which facilitated the development of their children's emergent literacy skills. This was deduced through the children's quantitative results and parents' reports. All four children demonstrated increases in phonological skills and vocabulary knowledge on the assessments and probes. Parents also reported that they noticed improvements in their children's early literacy skills over the course of the programme. The demonstrated gains in children's phonological awareness skills within the current study are consistent with previous research by Harper, (2011), Nancollis et al. (2005) and Torgesen et al. (2001) which used researchers and specially trained teachers in the implementation of phonological awareness programmes. These findings suggest that this early literacy programme could be as effective as other literacy programmes implemented by trained professionals. These results are also consistent with those by Burgoyne et al. (2018); Han et al. (2017); Niklas and Schneider (2017); Pratt et al. (2015) and Sénéchal and Young (2008) who found parents to be able to successfully implement a literacy programmes with positive gains in children's early literacy skills.

Parents' maintained a similar consistency of the duration of sessions, as well as, the number of sessions a week across the entire programme. One limitation that previous research involving parent-led literacy intervention programmes found was a loss of engagement, due to a lack of interest and the time required to implement the programme (Skibbe et al., 2011). Although parents differed in their session lengths and times per week, all parents used the programme for the suggested 100 minutes or more a week over the 12 weeks. The consistent implementation of the programme was likely related to the ongoing support provided, the coaching sessions with modelling, and the programmes' flexibility, simplicity and gradual progression in terms of the introduction of skills. Furthermore, while parents reported some difficulty at times, in terms of implementing the programme for a

multitude of reasons, it was the support, accountability and improvements they observed in their children that sustained their use of the programme. Compared to other parent-implemented programmes, such as Let's Play in Tandem (Ford et al., 2009), the current programme was shorter in duration. This may also have aided in parents sustained consistency, as 20 minutes a day, five days a week for 12 weeks is a lot more manageable for some families than 60 minutes a week for 40 weeks.

Parents were agentic in their implementation of the programme and used their initiative to use the skills and activities of the programme in varied situations and contexts. Although parents were not explicitly told to, nor did they have specific contact with each other, they all continued the activities and skills taught in the phonological awareness programme into the vocabulary programme. Parents reported both similar and different ways they did this. Parents used the phonological skills to teach the vocabulary words. They would introduce the word to the child, then they would systematically isolate its initial and final phonemes, segment and blend the word and discuss words that rhymed with it or started with the same phonemes (alliteration). Parents often used the phonological skills to start sessions of the vocabulary programme, commencing with familiar games such as phoneme I Spy or a memory game before moving forward into a vocabulary activity.

Parents also used the phonological skills outside of the vocabulary programme such as to enhance shared reading before bed. They would have children identify phonemes, blend and segment words, find rhyming words or have them link phonemes to letters and words. This extension of the phonological programme into the vocabulary programme was unexpected, as the researcher had assumed parents would discontinue the phonological awareness activities in favour of employing the vocabulary activities. The extra practice and

development are most likely why children's phonological skills, for the most part, improved between the midpoint and post-test assessments. This was seen notably in children's blending and segmenting skills, especially for Daniel and Sarah. However, because these skills were taught last in the programme, minimal growth may be more likely at midpoint testing. Additionally, the increased blending and segmenting of the target vocabulary words provided in the vocabulary programme may have also contributed to this latter growth.

In summary, the results of this study suggest that parents can be effective and consistent in implementing early literacy programmes in the home environment. They are able to produce gains in children's emergent literacy skills consistent with research conducted using trained professionals. Parents were also able to adapt the programme focuses and skills for different situations and activities; such as using the phonological awareness activities within the vocabulary portion and shared reading.

### **Spinoff Effects**

Participation in this literacy programme not only improved children's phonological and vocabulary skills but contributed to wider changes to their literacy interests, speech and confidence.

#### *Reading and Writing*

Over the course of the programme, all of the children's interest in books and literacy activities increased. Prior to participation, Tania reported James had no interest in books or being read to. By the end of the programme, James was asking to be read to and was picking out books by himself. He was creating his own stories from the pictures in books, identifying letters (especially the ones in his name) and had an increased interest in writing the letters in



his name. This was also observed in Daniel, who had started to identify letters and attempted to write his name. Daniel was also observed as having an increased desire to read texts independently. Sarah and Aarav have also started reading more independently, sounding out letters and words and reading two to four phoneme words. They have stopped asking their mother to read to them as much and are instead choosing to try reading independently. Active participation in these types of literacy activities will help build on the skills taught across the programme and improve children's comprehension and word decoding capability and therefore overall reading ability (Gough & Tunmer, 1986; Adams, Foorman, Lundberg, & Beeler, 1998; Tunmer & Hoover, 2019).

#### *Speech, Concentration and Confidence*

Some unexpected outcomes found across the children, from parent and teacher reports, included an increase in confidence, improved articulation and speech, enhanced concentration and engagement in activities, and more expressive with their parents. It is difficult to generalise outcomes across only four children, but similar patterns were observed across the group. Parents reported that both Daniel and James had improved on their concentration and ability to engage in activities, especially in reading and listening to books, writing and colouring. This could be due to the routine of being actively engaged within the reading process instead of being a passive receiver in sessions. It may also be that increased vocabulary facilitated their comprehension of texts, which further fostered engagement of the children.

Daniel, James and Sarah were all reported as showing increases in their articulation of speech and their language use. Daniel was stammering less than previously noted and he had increased in general confidence. James, and his younger sister, were more confident in

speaking to unknown adults and increased their speech in general. Sarah's improved in her pronunciation and articulation of words.

All the children started using the vocabulary words taught in the programme. This increased children's communication with their parents. All of the children were able to better describe their feelings and emotions and reflect on how past experiences had made them feel. This is especially beneficial for children in helping them to recognise and identify their own emotions and the emotions of others, and helped parents better understand how their children feel (Webster-Stratton, 2013; Justice & McGinty, 2013). These additional skills will be beneficial once they begin school in aiding them to concentrate and participate in the classroom as well as making social connections with their peers.

#### *Parents Literacy and Language Skills*

An unexpected spinoff effect that occurred in this research related to the parents own literacy and language skills. A significant portion of existing intervention research has outlined programmes which solely focus on improving children's individual literacy skills. Previous research has found that this approach works for a lot of children (Gonzalez et al., 2014; Harper, 2011; Reeves et al., 2018; Ruston & Schwanenflugel, 2010; Torgesen et al., 2001; Waisk & Hindman, 2014). However, these intervention programmes often fail to provide long term outcomes (Henning et al., 2010; O'Connor et al., 2009) or short term results for at-risk populations, or to decrease the gap between those children at-risk and those not at risk (Fälth et al., 2017; Hagans & Good, 2013; Spencer, et al., 2012). The results and outcomes from the current research, however, suggest that improving parent's knowledge of literacy skills and educating them on literacy and language activities may contribute to fostering their children's literacy skills.

This gap in parents own literacy education was established through parent's feedback interviews. Sushma reported that prior to participating in this research, she had no knowledge of phonemes, blending or segmentation. She was never taught these skills, and in her primary language, the sound make-up of words and pronunciation is very different. She was concerned her lack of skills would negatively affect her children, which was a significant reason and motivator for her family's participation in this research. Now that she has knowledge of these skills and understands how to teach them, she feels more comfortable and confident in her abilities to teach and improve her children's skills. As discussed above, Sushma has taken the skills from this programme and adapted them to progress with the development of her children's skills, especially in shared book reading. Sushma's implementation and the children's positive outcomes also demonstrate that lower maternal knowledge in English is not a barrier to implementing a programme in English. However, to feel confident in her implementation, Sushma created lists of words for herself so she could easily look at rhyming words, words that started with a /d/ sound. This is something that the programme could provide to parents, especially those who have English as a second language, to aid in their implementation.

A feeling of having personally underdeveloped literacy skills was also reported by Tania. She felt she did not know how she could improve her children's literacy skills. Her oldest son was struggling with reading at school and she was worried about James' lack of speech and language skills. With the knowledge from the programme, combined with the modelling during coaching sessions, Tania now feels confident in her own skills. She noticed herself trying to diversify her language around her children and the skills taught have provided her new ways to teach not only James but help his older brother in his reading skills. Tania reported that James' brother had increased two reading levels over the duration of the

programme. She felt that this was likely due to his participation in the study, as well as her increased knowledge of how to develop his literacy skills.

Casey had prior knowledge of the literacy skills included in the programme, as she was a new entrant teacher. Nevertheless, the programme prompted her to do these activities with Daniel. She had taught these skills to her older two children but as life had got more hectic, she had overlooked them. Participation in this study was able to remind her to concentrate and prioritise these skills. The programme was able to provide her with activities and games as ways to teach these skills that she had never thought or heard of before, and she was able to use them not only with her children but in her classroom as well. Furthermore, Casey reported a change in her own vocabulary as she tried to use more diverse words, focusing on using Tier 2 words in the place of Tier 1 words, and discussing words multiple definitions. This not only enhanced Daniel's vocabulary skills but his older siblings' as well.

Parents reported that the modelling and discussions during coaching sessions enhanced their implementation of the programme and that the accountability of having to meet with the researcher contributed to their engagement with the programme. The modelling of activities, and the opportunity to ask questions made parents more effective teachers. If parents had simply been provided with the programme materials, although the activities and games had examples, parents said they would have had less knowledge of the skills and how to teach the activities. Therefore, it is likely that the programme would have been less effective, and parents would likely have not had the sustained consistency they demonstrated. All three parents plan to continue the activities in the future now that they have a strong understanding of foundational literacy skills.

Providing parents with the knowledge of what literacy skills are, why they are important, easy ways to teach them, and supporting parents through this could be the key to improving the early literacy skills and later academic success of their children. It is hypothesised that this may also be able to increase the long-term outcomes by providing parents with lifelong literacy skills that can support their children's ongoing development.

### **Evaluation of the Literacy Programme**

Overall, the parents enjoyed participating in the At-Home Early Literacy Programme. They noted it was easy to use, had simple, adaptable activities, and progressed in a suitable way. With such a small sample size, it is difficult to truly evaluate the programme, its contents, or determine the effectiveness of the sessions and durations. What this population did demonstrate was that each parent was able to implement the programme consistently for approximately 100 minutes a week. Feedback from parents indicated that although one week per skill was enough for some children, for others they may have needed a little more time. Parents also mentioned that throughout the programme they were unsure how their child was progressing past the skills they observed during sessions. If this programme was going to be used again, it could be driven by children's individual skill levels instead of solely time-driven, with researcher, parent and child dictating when they move on to the next skill. Parents could also be provided with short assessments, such as the probes used by the researcher, to better understand how their child's skills are developing. This could be especially helpful for parents continuing with the activities after the programme has officially finished without the ongoing support of the researcher, as it could help them understand what areas to focus on, and what skills their child has already mastered.

Additionally, to build off the idea of educating parents, the programme could include instructions on how to further develop children's comprehension and vocabulary skills through shared reading. For example, asking children specific questions about events in the story, to repeat back the timeline of events, discussion of motives or goals of characters, or to create sentences with specific vocabulary words. This would keep to the programmes oral-based objective while improving shared reading for those parents who choose to incorporate it. These types of activities could also be accomplished with movies, TV shows, audiobooks or games.

## **CHAPTER 6**

### **CONCLUSION**

This chapter will discuss the strengths and limitations of this research project and the implications for practice. Areas for future research around this topic will also be discussed.

#### **Limitations**

Although this research had various strengths and positive outcomes it also had many limitations. Firstly, was the small sample size. Ideally, this research planned to have a much larger number of participants- upwards of 10 to 15. Factors such as the high number of studies being conducted at the time and the events of early 2019 in Christchurch (the mosque shootings), may have contributed to the small number of families willing to participate. A larger sample size would have allowed for the original study design, increased validity and generalisation of the findings.

The original study idea included sequential, crossover control design, with two groups, one completing the phonological awareness portion first and then the vocabulary portion and the other completing the vocabulary portion first and then the phonological awareness portion. This design would have allowed for a greater understanding of the relationship and interaction between vocabulary and phonological awareness acquisition. All of the parents, without guidance from the researcher, chose to continue with the phonological awareness activities through the two-week break between two sections of the programme and into the vocabulary portion. All three parents also used the skills from the phonological awareness portion within the vocabulary activities or to teach the vocabulary words. Within the case study design, there was no indication of if the order of the different sections had been changed, whether parents would have used the vocabulary words to teach the phonological

skills or adapted the vocabulary activities in another way. Future research on this topic should utilise the original design to investigate this further. However, the small sample size did have some advantages. The researcher was able to create strong relationships with each of the families as well as with the kindergarten. This most likely enhanced coaching sessions and assessments as both parents and children felt comfortable with the researcher.

Secondly, the nature of this research as a master's thesis limited the length of the study. As all parents reported they planned to continue with the activities from the programme, and reported their own enhanced literacy skills, it would be beneficial to the research concerning parent-implemented programmes, to return to these families in a year or two, to further understand long term outcomes this programme had for these children's literacy skills and academic outcomes, and whether the implementation of the programme was sustainable for parents over a longer period.

Thirdly, the kindergarten, as the main location for assessments, provided distractions to some children. This was due to the noise and presence of other children and taking them away from their friends or activities to complete assessments. For example, during the post-test assessment period, Aarav was measured last in the day. During the initial phoneme identification task, Aarav was a little distracted as children at the kindergarten were packing up all the toys for the day and parents had started to arrive. In this task, Aarav scored six out of 10 during the baseline assessment. This increased to nine during the midpoint assessment but then decreased to four in the post-test assessment. Without this distraction, the researcher theorises Aarav would have performed similarly to his midpoint score of nine.

Furthermore, some of the measures used in this study limited the understanding of children's development. The BPVS, which was used to measure general receptive



vocabulary, was unable to demonstrate any significant growth across the programme. However, as aforementioned, changes on the BPVS over a short period of time are hard to measure and it is recommended not to be administered within three months of itself (Dunn & Dunn, 2009). Children's scores on this measure either decreased across the assessment periods or only increased the expected amount for natural development due to age for the time period in which children were assessed. Overall, the BPSV was unable to show any significant growth or development in participants' vocabulary. In future research, a different vocabulary measure should be utilised.

The probes could also be altered in future research. Children quickly mastered some of the skills and maxed out the questions. The way the probes were used also meant there was no baseline measure of phonological awareness, an ongoing measure of phonological skills throughout the vocabulary portion or measure of vocabulary knowledge through the phonological awareness portion. They were also limited to phonemes, rhyme units and words used within the programme. If used in future research, the probes could be extended to seven to 10 items for each task, include additional phonemes, rhyme units and words not included in the programme, and include both phonological tasks and vocabulary tasks in all probes. Probes could also be conducted during the baseline assessment to better comprehend children's initial skills. This would provide a deeper understanding of children's development of these skills over the course of the literacy programme.

Another limitation affecting the generalization of these results was a lack of measurement of family and home factors. It would have been interesting and beneficial to assess children's home literacy environment and look further into family factors which could have affected the programme. For example, whether parents' work commitments affected

implementation, wider family and sibling's roles in the literacy programme and explicit literacy development within the kindergarten or extracurricular settings. As reported by two parents in this study, when their hours at work increased, they found it harder to find time to implement the programme and complete the reliability side of the study (recordings and filling out the daily checklist). However, there were also reports by parents that older children played games from the programme with their younger siblings without the parent, or participated in modelling correct use of vocabulary words and phonological skills. The programme also only recruited children's mothers. It would be advantageous to also access or find ways to incorporate a second parent or older sibling, where applicable, without them having to also participate in coaching sessions as a second resource for children who could also implement programme activities.

### **Strengths**

One strength of this study was its mixed methodology design. By being able to measure not only children's literacy skills quantitatively through measures, as well as, qualitatively through parents and teachers' feedback and parents recording of sessions, the researcher was able to observe the development of children's literacy skills in a holistic manner. This was especially poignant with James. His results on the quantitative measures showed lower growth in most areas and he was extremely quiet and shy during most assessments. Feedback from his mother, however, illustrated he had developed many of the phonological skills taught and learned a good portion of the vocabulary words. The difference is that measures asked for what James could do independently, which may not be the case at home.

A strength of the At-Home Early Literacy Programme used in this research was its flexibility and adaptability to work for different families, with different routines, situations and life events. In the very beginning, during the first follow-up phone call Tania said she was having a lot of difficulty in getting James to participate in the activities. She did not feel he was ready to move on from initial phoneme identification to final phoneme identification. The researcher was able to adapt the programme for Tania so that she could continue with initial phoneme identification and made a plan for how and when they would on to the next stage. Two parents asked for extra time, one due to work commitments and the other due to sickness, which was easily accommodated. A strength of the knowledge-based vocabulary programme over the skill-based phonological programme was its option to further progress a topic once children had mastered it. This was achieved through the inclusion of additional Tier 2 words. Sushma and Casey especially utilised these additional words in weeks where they felt their children had mastered the four target words early on.

Another strength in this study, and the implementation of the programme, was the explicit guidance of skills and the support provided to parents during the intervention period. All parents reported that without the coaching sessions, ongoing support, and modelling, they would not have felt as confident and comfortable in their implementation in the programme. Providing this support was a main goal of this research and literacy programme. It was postulated that by supporting, motivating and encouraging parent's implementation of the programme, they would feel more confident in their abilities which would transfer to increased enjoyment and frequency of sessions. Two parents reported that they had felt deficient in their own literacy and language skills which impeded them from enhancing their children's skills. Now that those parents have learnt these skills and know how to teach these

skills within everyday activities, they feel they are in a better position to further their children's literacy and language skills.

This research, with the ongoing support and fortnightly coaching sessions, may have been too much for a Master's thesis student. Though created by the researcher, the literacy programme and its research counterparts, created a very intensive schedule for the researcher. Over the 12 week programme, the researcher conducted 18 one-on one-coaching sessions, 18 follow-up phone calls and 27 assessment periods over the four participants. Although the researcher had initially wanted 10-15 participants, retrospectively this could have quite possibly been too many participants for one person to handle, especially if all participants were participating concurrently. Future research could look at providing more time-efficient supports to parents, and include families that had multiple children at a single site. If the research was repeated with a larger sample size, a bigger research team would be required to provide the support and maintenance needed to help parents succeed and feel confident in their implementation.

### **Future Research**

It would be advantageous to this field of research to repeat this early literacy programme and return to the original research design in future research, to investigate whether if families had participated in the vocabulary portion first, whether they would have continued with these activities into the phonological awareness section.

To further understand and develop the findings of this study, the researcher would like to repeat this early literacy intervention programme again, through a longitudinal study with the originally planned sequential delayed crossover design, with the inclusion of three subgroups - a control group, an at-risk group and a not at-risk group. This design would allow

for further exploration of the relationship between vocabulary and phonological awareness acquisition within different subgroups of the population.

Proceeding with the idea of improving parent's literacy education and knowledge, the researcher would like to do a kindergarten wide, literacy education programme. Supplying parents with an updated version of the early literacy programme and supporting them through larger group coaching sessions, as well as, one-on-one support through phone calls. They would like to then follow these children as well as their siblings and families past kindergarten and measure their academic outcomes, reading abilities and a range of psychosocial factors, such as confidence and peer relations into Year 1 and Year 2 of primary school. They hypothesise that providing parents with an education in important literacy skills, techniques for implementing these skills, simple and easy literacy activities, coaching sessions with modelling, and ongoing support will facilitate the development of language and literacy skills within preschool children and provide the foundational skills to set up children to become successful readers.

As mentioned above, for the amount of support parents need in implementing this programme and the volume of administration required to facilitate the programme, a wider research and support team would be needed. Future research could look at the possibility of utilising Plunket nurses, kindergarten teachers, early childhood teachers or other professionals who have early contact with parents and children in the community. Their role would be to supervise, run and facilitate the programme with parents. Utilising people who are already available and in contact with children and their parents could make the programme and required support more financially viable; as well as, accessing parents who may slip through the cracks.

## **Implications for Practice**

The results from this study give further support to parents being recognised as effective teachers for their children in improving their early literacy skills. Parents were able to consistently and adequately implement the 12-week literacy programme and facilitate the development of their children's early literacy skills. This study also proposes that improving parent's knowledge of literacy skills and interventions could be the key to facilitating the development of emergent literacy and language skills in children. Skills learnt throughout the programme could enhance a parent's involvement in children's homework and shared reading. Further research is needed, however, to understand the effectiveness of parent-led interventions long term and with at-risk populations.

## **Conclusion**

This programme was just the beginning of these children's literacy journey. Once they start school, the skills they have learnt and the knowledge they have gained will be hugely beneficial to their acquisition of further language and literacy skills, in particular – reading, writing, and linguistic comprehension.

The results found in this study suggest that parents can be effective at increasing their children's phonological awareness skills and vocabulary skills through a home-based literacy programme. It also suggests that parents do not need specialist training in order to successfully implement a literacy programme. The study found that the programme not only increased children's literacy skills, but also resulted in positive spinoff effects that included increased confidence, articulation, speech, attention, and engagement. These positive effects were not only observed in the target children but also their siblings. One unexpected result found in this study was an improvement in parents own reported language and literacy.

Parents reported that the programme taught them foundational literacy skills that they were lacking in or unaware of, and how to effortlessly incorporate and teach these skills within everyday activities. This, in consequence, further improved the literacy skills of their children. Additional research is needed, however, to further explore the relationship between improving parent's language and literacy to facilitate the development of early literacy skills and later academic outcomes of their children.

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## APPENDIX 1

### Appendix 1 *At-Home Literacy Programme Schedule*

<b>Week</b>	<b>Programme</b>	<b>Event</b>
<b>Week 0</b> 24/6 – 30/6		Coaching Session
<b>Week 1</b> 1/7 - 7/7	<b>Phonological Awareness</b> Initial Sound Identification	Follow up phone call
<b>Week 2</b> 8/7 - 14/7	<b>Phonological Awareness</b> Final Sound Identification	Coaching Session + Probe
<b>Week 3</b> 15/7 - 21/7	<b>Phonological Awareness</b> Rhyme	Follow up phone call
<b>Week 4</b> 22/7 - 28/7	<b>Phonological Awareness</b> Alliteration	Coaching Session
<b>Week 5</b> 29/7 - 4/8	<b>Phonological Awareness</b> Blending	Probe
<b>Week 6</b> 5/8 - 11/8	<b>Phonological Awareness</b> Segmentation	Follow up phone call
<b>Week 7</b> 12/8 - 18/8	<b>Break</b>	Mid-point testing + probe
<b>Week 8</b> 19/8 - 25/8	<b>Break</b>	Coaching Session
<b>Week 9</b> 26/8 - 1/9	<b>Vocabulary</b> Nouns	Follow up phone call
<b>Week 10</b> 2/9 - 8/9	<b>Vocabulary</b> Verbs	Coaching Session
<b>Week 11</b> 9/9 - 15/9	<b>Vocabulary</b> Adjectives	Probe Follow up phone call
<b>Week 12</b> 16/9 - 22/9	<b>Vocabulary</b> Shapes and Sizes	Coaching Session
<b>Week 13</b> 23/9 - 29/9	<b>Vocabulary</b> Emotions	Probe
<b>Week 14</b> 30/9 - 6/10	<b>Vocabulary</b> Thinking Processes	Follow up phone call
<b>Week 15</b> 7/10 - 13/10		Post Testing + Probe Feedback Interview



## APPENDIX 2

### Appendix 2 *Parent Feedback Interview Questions*

Questions asked to all parents:

- (1) Could you tell me how you found the programme in regard to it working with your family and lifestyle?
- (2) Have you noticed any differences since participating in the programme with how (child participant) interacts or engages with books and written texts?
- (3) Did you continue with any of the phonological awareness activities into the two-week break and/or vocabulary portion of the programme?
- (4) Do you think there is the capacity for parents to continue with the activities with reduced support from say an outside coach? What do you think would enable this to happen?
- (5) Thinking about the last 3 months, are there any particular strengths you have noticed (child participant) develop, or are there any gaps you now see in their language and literacy development?

Examples of additional questions asked to parents, specific to children's individual development:

- Did you find any differences engaging with (child participant) individually compared to around their siblings?
- You mentioned that (child participant) used the vocabulary words more with their brother than with you, could you tell me a bit more about this?

- You noted (child participant) was a lot more engaged in the vocabulary portion, was there anything you felt influenced this compared to during the PA portion?
- You noted that during the vocabulary portion of the programme you found yourself wanting to diversify the language that you were using with your children, how do you think this has affected (child participant's) vocabulary development?
- Could you tell me what a typical session looked like for you? Did you tend to do activities when both children were together or separately?
- Did you find the programme appropriate for you and your children as English is not your first language?